

EFFICACY AND PREFERENCE FOR THREE SPELLING INSTRUCTIONAL
TREATMENTS UTILIZING ALTERNATING AND
SIMULTANEOUS TREATMENTS
DESIGNS

An abstract of a thesis by
Charles Howard Blonstein
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Drake University
Advisor: Kenneth E. Lloyd

The problem. Two studies were conducted to assess the relative efficacy of three methods of spelling instruction and student preference for treatments. Treatments were Positive Practice plus Positive Reinforcement (Positive Practice); Teacher Correction plus Own Study Method (Own Method); and Student Correction plus Specified Study Method (Specified Method).

Procedure. Each of three sets of words was remediated with a different treatment; improvement in spelling performance across sets was compared. A no remediation condition controlled for the effects of repeated testing alone. Preferences for treatments were assessed by allowing subjects to choose treatments and by administering questionnaires. Treatment durations were measured in minutes.

Findings. Differential treatment effects were small. Active treatments, however, were superior to the Control condition. Positive Practice was preferred most frequently. Treatment duration of Own Method was slightly shorter than that of Specified Method. Treatment duration of Positive Practice was longer than that of other treatments with a group of students but intermediate with a single student.

Conclusion. Although Positive Practice was the most frequently preferred treatment, it was more time consuming to administer to a group of students than other treatments and generally no more effective.

Recommendations. It was suggested that Own or Specified Methods be employed when time available for instruction is limited.

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by

Charles Howard Blonstein

Approved by Committee:

Kenneth E Lloyd

Kenneth Lloyd
Chairperson

Margaret E Lloyd

Margaret Lloyd

Edward E. Hakanson

Edward Hakanson

W. R. Abell

W. R. Abell
Associate Dean of the School of Graduate Studies

528741



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CHAPTER I

INTRODUCTION

Reports of sub-grade level spelling performance in United States schools are widespread (Fox & Easton, 1946; Horn, 1967; Ollendick, Note 1). Spelling deficiencies persist despite substantial research on instructional procedures (Allred, 1977; Fitzsimmons & Loomer, 1978; Hall, 1964; Horn, 1967; Loomer, 1978). Ineffective instruction in spelling may be due to a failure to apply results of this research in the classroom (cited in Loomer, 1978: Campanale; Fitzgerald; Horn; Petty).

Behavioral technology to improve spelling instruction has used positive reinforcement for correct spellings (Chadwick & Day, 1971; McLaughlin & Malaby, 1971; Sulzer, Hunt, Ashby, Konarski, & Krams, 1971), group contingencies (Evans & Oswalt, 1968; Lovitt, Guppy, & Blattner, 1969), and self-imposed contingencies (Lovitt & Curtis, 1969). When Positive Practice Overcorrection procedures were added to instructional conditions employing Positive Reinforcement alone, spelling accuracy increased (Foxy & Jones, 1978). In a component analysis of these procedures, Positive Practice alone was compared to Positive Practice plus Positive Reinforcement and to a no-remediation Control condition (Ollendick, Matson, Esveltd-Dawson, & Shapiro, 1980). The combined condition was slightly more effective than Positive Practice alone using an Alternating Treatments Design (Barlow & Hayes, 1979; Kazdin & Hartmann, 1978; Ulman & Sulzer-Azaroff, 1975). Both Positive Practice procedures were superior to the Control. In a second study with the same design, Positive Practice plus Positive Reinforcement was compared with a Traditional remediation procedure, and with Tradi-

tional remediation plus Positive Reinforcement (Ollendick et al., 1980). Positive Practice plus Positive Reinforcement was superior to either Traditional procedure. Traditional remediation plus Positive Reinforcement was more effective than Traditional remediation alone. Student preference of training methods was measured by a questionnaire. One learning disabled subject preferred the Positive Practice plus Positive Reinforcement treatment; a second, not considered learning disabled, preferred the Traditional plus Positive Reinforcement condition. The Traditional procedure consisted of teacher correction of spelling tests and five minutes of independent student study. These two features of Ollendick's Traditional condition are contraindicated by the traditional spelling literature (e.g. Fitzsimmons & Loomer, 1978). The single most important factor in learning to spell is having the student correct his own spelling test under the direction of the teacher (cited in Fitzsimmons & Loomer, 1978: Beseler; Christine & Hollingsworth; E. Horn; T. Horn; Louis; Schoesphoerster; Thomas; Tyson). Other results indicate that students should not be allowed to devise their own peculiar methods of studying spelling words (cited in Fitzsimmons & Loomer, 1978: Fitzgerald; E. Horn; T. Horn).

In the present studies, Positive Practice plus Positive Reinforcement was compared to Ollendick's nonresearched control procedure (Teacher Correction plus Own Study Method), to a researched control procedure (Student Correction of tests followed by a Teacher Specified Study Method), and to a nonremediated Control. A verbal questionnaire asking subjects to state their preferred method and to specify which method they wished

to use at the next session, provided a measure of correspondence between their verbal and actual preferences (Lloyd, 1980; Risley & Hart, 1968). Four subjects were tested in a group; a fifth subject was tested alone. A complete review of the relevant literature is in Appendix A.

CHAPTER II

METHOD

Subjects

Four female adolescents, enrolled in a residential treatment program for status offenders, participated in the study. All four were students in the same Learning Disabilities/Behavior Disorders classroom. Subject 1, a black 15-year-old, was admitted for running away from home, anger-control problems, and repercussions of cultural deprivation. A psychological evaluation revealed that "Her vocabulary, verbal concept formation, concentration, judgement, and fund of general information were uniformly poor" as was "her ability to note the essentials in her environment and to anticipate consequences of social acts or events." Although enrolled in the eighth-grade, her Brigance (1976) spelling and Woodcock (1973) reading levels were 4.0 and her Key math level (Connolly, Nachtman, & Pritchett, 1976) was 5.3. A WISC-R (Wechsler, 1974) testing revealed a Verbal IQ of 64, a Performance IQ of 78, and a Full Scale IQ of 69.

Subject 2, a 15-year-old caucasian, was admitted for running away from home, lying, stealing, and prostitution. Her psychological evaluation disclosed "borderline capacity in nonverbal conceptualization," and functioning within the educable range for "remote memory for factual data, verbal abstracting, arithmetic reasoning, verbal fluency, common sense reasoning, attentiveness to the environment and in visual closure." She was enrolled in the ninth-grade but obtained Brigance (1976) spelling and Key math levels (Connolly et al., 1976) of 5.0 and a Woodcock (1973)

reading level of 4.1. Intelligence testing resulted in a Verbal IQ of 65, a Performance IQ of 78, and a Full Scale IQ of 70 on the WISC-R (Wechsler, 1974).

Subject 3, a black 17-year-old, was admitted for running away from home, difficulty in being placed in a foster home, parental neglect, truancy, lying, manipulating residents in previous placements for her own gain, and encouraging them to follow her examples of experimentation with sex and drugs. Her psychological evaluation indicated "lowest scores in general fund of information and vocabulary" while "visuo-motor and visuoperceptual skills were congruent with her age." Subject 3 was a ninth-grader with Brigance (1976) spelling and Woodcock (1973) reading levels of 6.0, and a Key math level (Connolly et al., 1976) of 6.4. Her Full Scale WAIS IQ (Wechsler, 1955) was 83. No Verbal or Performance IQ's were available.

Subject 4, a 14-year-old caucasian, was admitted for being out of control at home, running away, lying, and behavior problems at school. Her psychological evaluation indicated "verbal abilities suggesting above average potential." Enrolled in the eighth-grade, Subject 4 obtained a Brigance (1976) spelling level of 6.0, a Woodcock (1973) reading level of 8.6, and a Key math level (Connolly et al., 1976) of 6.4. Psychological testing disclosed a Verbal IQ of 103, Performance IQ of 101, and Full Scale IQ of 102 on the WISC-R (Wechsler, 1974).

Subjects 1 and 2 had been given "learning disabled" and "educably mentally handicapped" labels whereas Subjects 3 and 4 were considered nonlearning disabled" and "behaviorally disordered."

Stimulus Materials

The stimulus words for spelling instruction were obtained from Improving Spelling Performance: Management Guide for Teachers and Administrators (Middleton, 1976). Word sets of two difficulty levels were selected from weekly spelling lists for secondary schools in the Guide. Forty less difficult words were selected for Subjects 1 and 2 from level 3 lists of instructional weeks 25-26. Forty more difficult words were selected for Subjects 3 and 4 from level 1 lists of instructional weeks 11-27 (Appendix B contains the word lists, word difficulty levels, and instructional weeks). Selection of the appropriate word difficulty levels for subjects was determined by administration of a 60-word leveling pretest also included in the Guide. Pretest words were rank ordered for difficulty using eighth-grade norms (The New Iowa Spelling Scale, Greene, 1954). Word sets for Study 1 contained words within that difficulty range in which subjects spelled few or no words correctly on the leveling test (Appendix C contains the leveling test words, their difficulty rankings and levels, their word numbers, and specification of which words were spelled correctly by each subject). Words were excluded from word sets if they either appeared on the leveling pretest or contained the same word root as another selected word. Subjects 1 and 2 were assigned words which could be spelled correctly by 42 to 70 % of eighth-graders. Subjects 3 and 4 were assigned words which could be spelled correctly by 15 to 34% of eighth-graders. The words were rank ordered by difficulty. Contiguous words of similar difficulty were distributed to form five word sets of eight words each.

The word sets were randomly assigned to five treatment conditions.

Experimental Design

Following a Baseline condition, an Alternating Treatments Design and a Simultaneous Treatments Design were used. All procedures were administered by the regular classroom teacher in his classroom or by the author (Sessions 10, 13, 24, and 25). Some procedures required individual administration (e.g. Positive Practice plus Positive Reinforcement) while others (e.g. spelling tests, student test correction) were conducted in a group. While one subject was remediated individually, the others engaged in individualized, nonspelling activities.

The study contained four phases: Baseline, Alternating Treatments, Most Effective Treatment, and (following administration of verbal and behavioral preference questionnaires) Simultaneous Treatments. Prior to Baseline, the teacher explained the purpose of the study, and how it would be conducted (Appendix D contains the prebaseline student orientation).

Baseline. During Baseline subjects spelled the stimulus words on test forms (The form is in Appendix E). No feedback on performance was given. Each spelling word was presented to subjects by identifying the number of the word, saying the word, using the word in a prespecified sentence (Appendix F contains the sentences), and repeating the word. The teacher and author attempted to comply with the following guidelines during test administration: Allow a maximum of 15 seconds writing time between the end of a word's repetition and the announcement of the next word's number, maintain silence during writing time, avoid special

pronunciation of spelling words (e.g. syllabification), avoid words of encouragement, and avoid responses to student requests and questions. Four of the five sets of words were administered each session (the fifth set of words was not used until Simultaneous Treatments). Before Session 7, the serial order of word sets was random. After Session 6, the serial order of word sets was systematically counterbalanced every four sessions (Appendix G contains the counterbalancing orders). Six words were redistributed within the less difficult word sets before Session 3 for Subjects 1 and 2. Two words were redistributed within the more difficult word sets before Session 6 for Subjects 3 and 4. Words removed from one set and added to another were replaced by words of equal difficulty from the eighth-grade norms (The New Iowa Spelling Scale, Greene, 1954). Baseline lasted 10 sessions. The dependent variable during Baseline and during the other phases was number of words (out of eight words in each set) correctly spelled.

Alternating Treatments. In this phase, four experimental conditions were sequentially administered each session in a counterbalanced order. Distribution of spelling test forms initiated a condition. To increase discriminability of conditions, descriptions of remediations employed were read prior to testing. Testing was followed by remediation of misspelled words. Alternating Treatments was continued for seven sessions. One-hundred percent spelling accuracy had been achieved on at least one word set by three subjects. The first condition attaining 100% performance was labeled "Most Effective Treatment."

Most Effective Treatment. Before the spelling test in Session

18, subjects were instructed by the teacher as to which treatment they would receive. While some subjects were being remediated, the others wore earplugs to avoid exposure to other treatments. The three sets of words which had previously been assigned to the three treatments were now all assigned to the Most Effective Treatment. The fourth set of words remained in the Control condition. Subjects 1, 3, and 4 were remediated simultaneously since their Most Effective Treatment permitted this. The Most Effective Treatment for Subject 2 required an individualized procedure. This phase lasted eight sessions for three subjects and seven sessions for the fourth. After the last session of the Most Effective Treatment phase, subjects completed a three item multiple choice, verbal preference questionnaire (Ollendick et al., 1980) which asked them to indicate: which treatment was most preferred; which treatment produced the most learning; and which would be chosen to learn a new set of words (Appendix H contains the verbal preference questionnaire). Finally they were asked to choose the treatment they actually would want to have on the next session on a three item multiple choice, behavioral preference questionnaire (Appendix I contains the behavioral preference questionnaire).

Simultaneous Treatments. During the first session each subject received the treatment she had chosen at the end of the previous session. At the end of the first session subjects were again asked for their behavioral preferences. This same procedure was repeated in the second session. After the third Simultaneous Treatments session, the experiment was ended.

Experimental Conditions

Three treatments were used plus a Control condition (checklists for all conditions are in Appendix J).

Positive Practice plus Positive Reinforcement (Positive Practice).

The subject sat at the teacher's desk as the teacher graded her test; informed her of point earnings; verbalized praise; and specified misspelled words. Points could be exchanged for art and school supplies, field trips, and other backup reinforcers available through the classroom's pre-existing point economy program. For each misspelled word, the student would listen to the teacher say and spell the word in a syllabified manner; repeat the word; and simultaneously spell and write the word. This process was repeated until the word was spelled correctly five times. Following each student spelling of a word, feedback on the correctness of responses was delivered (the actual instructions are in Appendix J). This experimental condition replicated the Positive Practice plus Positive Reinforcement condition of Ollendick et al. (1980), except for the availability of backup reinforcers.

Teacher Correction plus Own Study Method (Own Method). The teacher placed an "X" beside misspelled words and entered correct spellings following the spelling test. Students were given their test papers, lined 8½ X 11 writing paper, and five minutes to study misspelled words using any study method they chose. This condition replicated Ollendick's nonresearched traditional control condition except that his subjects were not given writing paper.

Student Correction plus Specified Study Method (Specified Method).

This procedure was the researched traditional control condition (cf. Fitzsimmons & Loomer 1978). The teacher spelled each test word correctly as students pointed with their pens to the letters they had written on their test papers; students copied misspelled words from a model sheet of correct spellings. These student corrections were then checked by the teacher. During Specified Study, misspelled words were written correctly on a study sheet to serve as models (Appendix K contains the study sheet). For 5 minutes, each misspelled word was studied by: covering up the correctly spelled model; attempting to write the misspelled word correctly; uncovering the model; and comparing the spelled word with the model. This was repeated five times with each misspelled word.

Control. Words were presented and spelled by subjects as in Baseline.

Reliability

Teacher compliance. Teacher compliance with treatment instructions was recorded on checklists by the author during all the sessions. Percent teacher compliance for each checklist was number of compliances divided by number of compliances plus number of noncompliances plus omissions times 100. The teacher served as second observer; he used the same checklists as the author. Reliability was calculated as number of agreements divided by number of agreements plus number of disagreements times 100. Median percent teacher compliance across all phases and

conditions was 94% (range=91-100). Median percent reliability during Baseline and Alternating Treatments was 90% (range=68.5-100); median reliability during Most Effective and Simultaneous Treatments was 66% (range= 40-80).

Most reliability disagreements occurred when the author recorded a compliance and the teacher did not record a response which he actually had emitted. Such teacher omissions increased across experimental phases.

Spelling scores. Students spelled words on forms on which eight words could be written, scored, and corrected. Capital letters were considered as penmanship and not spelling errors. Marks indicating correct and incorrect spellings were entered to the left of words in one of three columns. Students used the left hand column, the test administrator the middle column, and the reliability assessor the right hand column. Total words correct and total words missed were recorded. Numbers of words spelled in the Results section are based on the author's scorings. The second observer was the author, the teacher (Sessions 10, 13, 24, and 25), or the subjects (for student corrected tests). The left margins of the test form were folded back to remove the initial grader's marks from view of the second observer. Percent reliability, calculated as before, across all experimental phases and subjects was 99.4%.

Treatment durations. During the Alternating Treatments phase, the author recorded the times (to the nearest minute) treatment was begun

and ended. Treatment began when the test administrator asked, "Does everybody have a sharpened pencil?" Treatment ended when the test administrator stopped looking toward and manipulating test materials associated with the treatment. For the Positive Practice condition, the times that individualized remediation began and ended were also recorded. Remediation began when a subject sat in a chair beside the teacher's desk and ended when she left the chair. Positive Practice instruction duration for individual subjects was calculated as number of minutes of group test administration (from treatment initiation until the first subject sat at the teacher's desk) plus number of minutes of individualized remediation. The same times recorded by the author were also recorded by the teacher. Median percent duration reliability (smaller duration divided by larger duration times 100) was 99.5% (range= 92-100) for four treatments and 87.5% (range=84-94) for individual Positive Practice instruction duration across subjects.

Treatment Duration

Table 2 contains total treatment durations and durations of the first and last three sessions for four treatment conditions during alternating treatments. Treatment duration was shortest for One Method (211 minutes), intermediate for Specified Method (144 minutes), and longest for Positive Practice (224 minutes). Although duration of teacher time

CHAPTER III

RESULTS

Spelling Scores

The number of words spelled correctly is plotted for each session for the four subjects in Figure 1. Baseline performance was low and nonsystematic for all word sets. During Alternating Treatments, performance increased for the three treated sets of words. No one treatment condition was consistently superior for all subjects. For some subjects no one treatment was ever consistently superior (Subject 1); for other subjects one treatment was either consistently superior (Subject 2) or inferior (Subject 3). During the Most Effective Treatment, performance increased to a high level for all treated word sets; performance remained low for control words. During Simultaneous Treatments, performance on the previously unused fifth set of words consistently improved. Positive Practice was most often actually chosen during Simultaneous Treatments. The data in Figure 1 resemble that reported by Ollendick et al. (1980) for their Study 1, in that the different treatments produced overlapping effects. The data in Figure 1 differ from the Ollendick data in that Positive Practice is not consistently the Most Effective Treatment.

Treatment Durations

Table 1 contains total treatment durations and durations of the first and last three sessions for four treatment conditions during Alternating Treatments. Treatment duration was shortest for Own Method (111 minutes), intermediate for Specified Method (144 minutes), and longest for Positive Practice (294 minutes). Although duration of teacher time

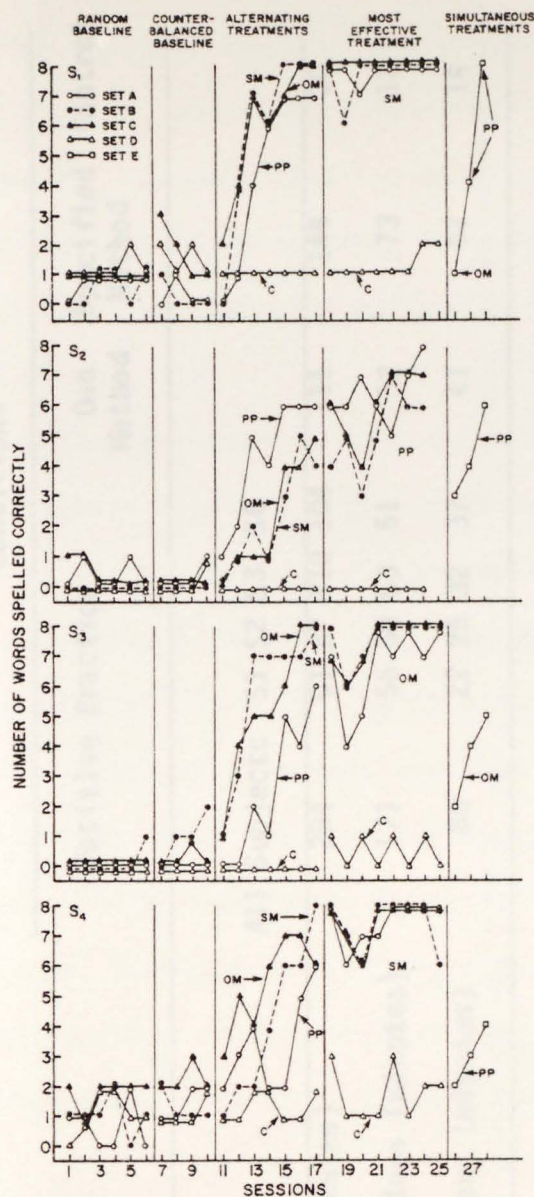


Figure 1. The number of words spelled correctly by Subjects 1, 2, 3, and 4 during the four experimental phases for five sets of words. During the Alternating Treatments phase, words from Set A were assigned to the Positive Practice (PP) condition; words from Set B were assigned to the Specified Method (SM) condition; words from Set C were assigned to the Own Method (OM) condition; and words from Set D were assigned to the Control (C) condition. During the Most Effective Treatment phase, all word sets were assigned to the Specified Method condition for Subjects 1 and 4; the Positive Practice condition for Subject 2; and the Own Method condition for Subject 3. During the Simultaneous Treatments phase, words from Set E were assigned to the Positive Practice condition for Subjects 1 (Sessions 27 and 28 only), 2, and 4 and to the Own Method condition for Subjects 1 (Session 26 only) and 3.

Table 1

Total Treatment Durations and Durations of the First and Last Three Sessions
for Four Treatment Conditions during Alternating Treatments

	Conditions							
	Positive Practice				Own Method	Specified Method	Control	
Durations	All Subjects	S1	S2	S3	S4			
Total treatment duration (minutes)	294	91	87	110	104	111	144	30
Duration of first three sessions (minutes)	171	56	50	63	51	52	73	12
Duration of last three sessions (minutes)	80	22	25	32	37	41	52	14

required to administer Positive Practice was longer than that of other treatments, student time to receive Positive Practice was shorter than that of other treatments. Student time included test administration plus individual remediation; it ranged from 87 minutes (Subject 2) to 110 minutes (Subject 3). The Control Treatment required 30 minutes for test administration alone.

Treatment durations decreased for all three active conditions from the first to the last three sessions. Decreases were least marked with Own Method (from 52 to 41 minutes or a 21% decrease), intermediate with Specified Method (from 73 to 52 minutes or a 29% decrease), and most marked with Positive Practice (from 171 to 80 minutes or a 53% decrease). Own Method maintained a shorter treatment duration than Specified Method from the first to the last three sessions (21 minutes shorter during the former and 11 minutes shorter during the latter). It was during the last three sessions that duration variability across sessions decreased for Specified Method; session duration ranged from 20 to 30 minutes during the first three sessions and from 17 to 18 minutes during the last three sessions.

Verbal and Actual Preferences

Table 2 contains the treatment used during the Most Effective Treatment condition; the treatments chosen for the three questionnaire items; and the treatment actually chosen during the Simultaneous Treatments condition for the four subjects in Study 1. Subject 1 selected Specified Method as a response to all three questionnaire items. This

Table 2

Treatments Employed during the Most Effective Treatment Phase, Treatments Chosen
for Questionnaire Items and Treatments Employed during the Simultaneous Treatments
Phase for All Subjects

Subject	Phase	Verbal Questionnaire Items			Phase
	Most Effective Treatment	1. Which procedure did you prefer?	2. From which procedure did you learn the most?	3. Which procedure would you use to learn new sets of words?	Simultaneous Treatments: Actual choices
1	Specified Method	Specified Method	Specified Method	Specified Method	Own Method/ Positive Practice
2	Positive Practice	Positive Practice	Positive Practice	Positive Practice	Positive Practice
3	Own Method	Own Method	Own Method	Own Method	Own Method
4	Specified Method	Positive Practice	Specified Method	Specified Method	Positive Practice

CHAPTER IV

was her Most Effective Treatment as well. During Simultaneous Treatments, she actually chose Positive Practice twice following what she later described as one erroneous choice of Own Method. Subject 2 selected Positive Practice as a response to all three questionnaire items and as her subsequent actual choice. This had also been her Most Effective Treatment. Subject 3 responded as consistently as Subject 2 but to a different treatment. Subject 4's choices resembled those of Subject 1. Subjects 2 and 3 chose their Most Effective Treatment (column 2) as a Simultaneous Treatment (column 6); Subjects 1 and 4 chose a different Simultaneous Treatment.

CHAPTER IV

STUDY 2

INTRODUCTION

In Study 1 Positive Practice plus Positive Reinforcement was the Most Effective Treatment for only one of four subjects. This result differed from that of Ollendick et al. (1980) who found that Positive Practice plus Positive Reinforcement was the Most Effective Treatment for four of four subjects. In Study 2, two features of Study 1 were altered to produce experimental conditions more similar to those of Ollendick et al. (1980). Study 2 was conducted with a single subject in contrast to a group of four. The spelling words were chosen from the Sivaroli Classroom Reading Inventory (1976). Positive Practice plus Positive Reinforcement (Positive Practice) was compared with Student Correction plus Specified Study Method (Specified Method) and with Teacher Correction plus Own Study Method (Own Method) in an Alternating Treatments Design. The Control condition and the Simultaneous Treatments phase of Study 1 were eliminated.

CHAPTER V

METHOD

Subject

Subject 5, a 13-year-old male caucasian, was admitted for being out of control at home, threatening teachers, and running away from school. A psychological evaluation reported "a one-year developmental lag in visual-motor integration" and yielded a DSM III diagnosis of "Attention Deficit Disorder (residual)" and "Mixed Specific Developmental Disorder." Enrolled in the eighth-grade, Subject 5 obtained grade levels of 2.7 in spelling, 3.4 in reading, and 3.6 in math on the WRAT (Jastak, Jastak, & Bijou, 1976). Intelligence assessment rendered a WISC-R (Wechsler, 1974) Verbal IQ of 86, Performance IQ of 104, and Full Scale IQ of 93.

Stimulus Materials

The stimulus words employed for spelling instruction were obtained from the Sivaroli Classroom Reading Inventory (1976), fifth-and sixth-grade Equivalent Forms A and B. Words were assigned difficulty levels using eighth-grade norms (The New Iowa Spelling Scale, Greene, 1954). Fifteen words were selected from the sixth-grade form and nine words were selected from the fifth-grade form. Each selected word could be spelled correctly by 48 to 90% of the pupils in the normative sample. Selected words were rank ordered in terms of difficulty. Contiguous words of similar difficulty were then sequentially assigned to three sets of eight words each. Each word set was randomly assigned to one of three treatment conditions (Appendix L contains word sets, word

difficulty and grade levels, and equivalent forms from which words were obtained).

Experimental Design and Conditions

The author served as teacher. Sessions were conducted in unoccupied classrooms, the subject's room or the lobby of the group home. Baseline lasted 3 sessions, Alternating Treatments 10 sessions, and Most Effective Treatment 9 sessions. All other experimental design and condition features of Study 2 were the same as those in Study 1 (see Appendix M for counterbalancing orders and Appendix N for sentences).

Reliability

Compliance. Compliance with treatment instructions was recorded by the author. Median compliance across all phases and conditions was 100% (range= 95-100).

Spelling scores. The second observer of spelling scores was Subject 5 if tests were student corrected or a research associate if tests were author corrected. Percent reliability of spelling scores across all experimental phases and conditions was 99.8%.

CHAPTER VI

RESULTS

Spelling Scores and Verbal Preference

In Figure 2, the number of words spelled correctly is plotted for each session for Subject 5. Baseline performance was low and nonsystematic for all word sets. During Alternating Treatments, performance increased for all three sets of words. No one treatment was consistently superior. Own method became inferior as the phase continued. During the Most Effective Treatment phase, performance increased to 100% for all word sets. Subject 5 chose Positive Practice for all three questionnaire items; it was not his most effective treatment.

Treatment Durations

Table 3 contains total treatment durations, durations of the first seven sessions, and durations of the first and last five sessions for three treatment conditions during Alternating Treatments. Treatment duration was shortest for Own Method (99 minutes), intermediate for Positive Practice (115 minutes), and longest for Specified Method (154 minutes). Duration of Positive Practice for the first seven sessions of Alternating Treatments was 96 minutes; it was within the range obtained in Study 1 for seven sessions of Positive Practice with individual subjects (e.e. 85-110 minutes). Durations for the first seven sessions, however, were shorter for Own Method (i.e. 70 minutes) and Specified Method (i.e. 112 minutes) than those obtained for seven sessions in Study 1.

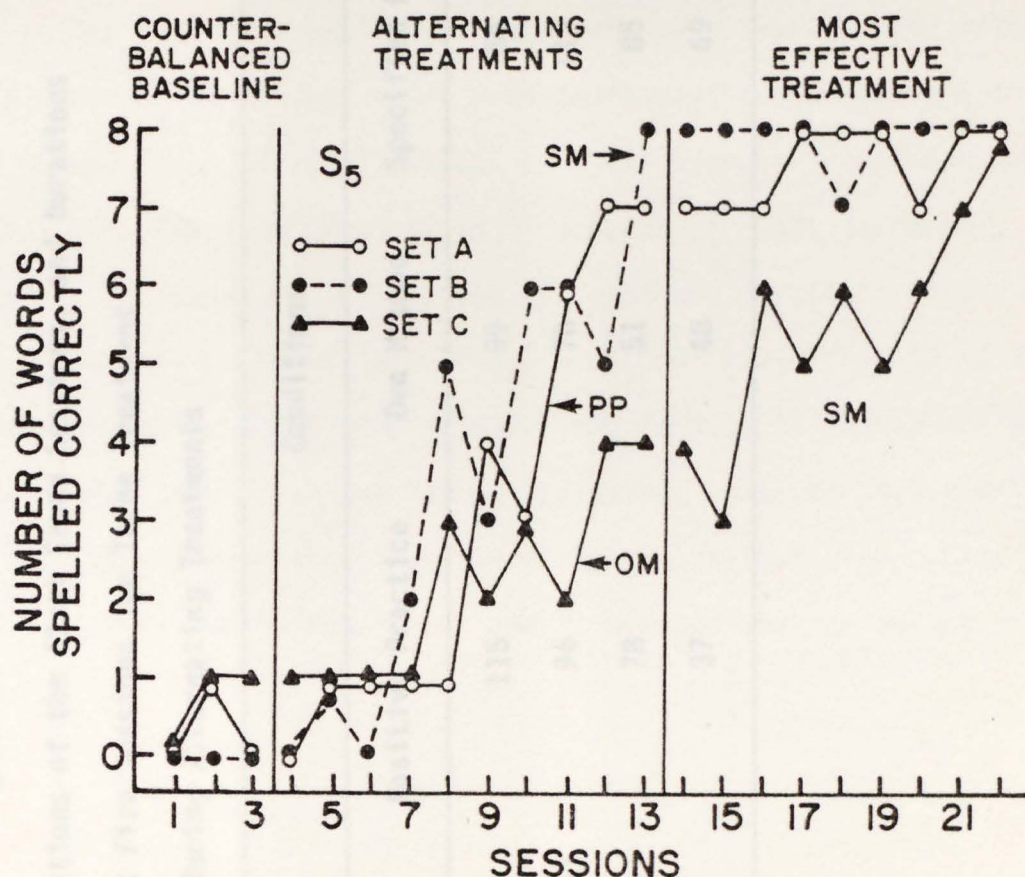


Figure 2. The number of words spelled correctly by Subject 5 during the three experimental phases for three sets of words. During the Alternating Treatments phase, words from Set A were assigned to the Positive Practice (PP) condition; words from Set B were assigned to the Specified Method (SM) condition; and words from Set C were assigned to the Own Method (OM) condition. During the Most Effective Treatment phase, all word sets were assigned to the Specified Method (SM) condition.

Table 3

Total Treatment Durations, Durations of the First Seven Sessions, and Durations
of the First and Last Five Sessions for Three Treatment
Conditions during Alternating Treatments

Durations	Conditions		
	Positive Practice	Own Method	Specified Method
Total treatment duration (minutes)	115	99	154
Duration of first seven sessions (minutes)	96	70	112
Duration of first five sessions (minutes)	78	51	85
Duration of last five sessions (minutes)	37	48	69

CHAPTER VII

Treatment durations decreased for all three conditions from the first to the last five sessions. Decreases were least marked with Own Method (from 51 to 48 minutes or a 6% decrease), intermediate with Specified Method (from 85 to 69 minutes or a 19% decrease) and most marked with Positive Practice (from 78 to 37 minutes or a 53% decrease). During the last five sessions, variability of treatment durations across sessions decreased for Specified Method; durations ranged from 15 to 22 minutes during the first five sessions and from 13 to 16 minutes during the last five sessions. Own Method maintained a shorter treatment duration than Specified Method from the first to the last five sessions (34 minutes shorter during the former and 21 minutes shorter during the latter).

It is superior to the other two and, of course, only the data from Subject 2 could be said to replicate the findings reported by Ollendick et al. (1980).

It is, however, possible to question the superiority of Positive Practice even with Subject 2. This subject was the only one for whom no method attained 100% performance. The absolute terminal value for Positive Practice for Subject 2 was six correct words spelled out of eight. For the other subjects for whom Positive Practice was the third or second Most Effective Treatment, the absolute values for Positive Practice were smaller (seven for Subjects 1 and 5 and six for Subjects 3 and 4). Rather than concluding that Positive Practice was superior for Subject 2, it may be more reasonable to suggest that Own and Specified Methods were actually very inferior for Subject 2 relative to their

CHAPTER VII

DISCUSSION

Spelling Scores

During the Alternating Treatments phase, Specified Method was selected as the Most Effective Method for three subjects (1, 4, and 5), Own Method was selected as the Most Effective Method for Subject 3, and Positive Practice was Most Effective for Subject 2. Although one treatment was selected as the Most Effective Method in each case, it is obvious from Figures 1 and 2 that a second treatment was about equally effective for four of the five subjects (Own Method for Subjects 1 and 4; Specified Method for Subject 3, and Positive Practice for Subject 5). Only the data from Subject 2 indicated one method (Positive Practice) to be superior to the other two and, of course, only the data from Subject 2 could be said to replicate the findings reported by Ollendick et al. (1980).

It is, however, possible to question the superiority of Positive Practice even with Subject 2. This subject was the only one for whom no method attained 100% performance. The absolute terminal value for Positive Practice for Subject 2 was six correct words spelled out of eight. For the other subjects for whom Positive Practice was the third or second Most Effective Treatment, the absolute values for Positive Practice were similar (seven for Subjects 1 and 5 and six for Subjects 3 and 4). Rather than concluding that Positive Practice was superior for Subject 2, it may be more reasonable to suggest that Own and Specified Methods were actually very inferior for Subject 2 relative to their

effectiveness for the other four subjects. Although these data differ from Ollendick's with respect to Alternating Treatments, this was not the case during the Most Effective Treatment phase when, like Ollendick's results, all word lists closely approximated 100% performance for all subjects.

A closer examination of the figures in the Ollendick article revealed that for all subjects (but especially Child 4) the scores for the words assigned to Positive Practice increased from Baseline during the first session of Alternating Treatments despite the important fact that the treatment of Positive Practice did not begin until after the spelling test for that session had been completed. No comparable increases for words assigned to Positive Practice occurred in Figures 1 or 2 of the present study. If Positive Practice words in the Ollendick study somehow began with an advantage this could have contributed to their ultimate superiority.

There were also at least eleven other conditions which differed between the two experiments and which could have contributed to the different results. Ollendick (Note 2) reported that his subjects were not provided with any study paper at all to write on with Own Method. Subjects studied from their teacher corrected test papers. In the present experiments, study papers were provided. Matson (Note 3) indicated that in the Ollendick et al. (1980) study, the classroom teacher conveyed to subjects that Positive Practice was meant as "punishment." Voice tone and facial cues may have been absent from the present studies which made Positive Practice less aversive than it was in the

Ollendick study. Failures to replicate may be accounted for by the increased efficacy of Own Method resulting from study paper use and the decreased efficacy of Positive Practice resulting from voice tone and facial cue variables in the present studies. Stars without backup reinforcers were used in Ollendick's study whereas points with backup reinforcers available through a classroom point economy program were used in the present studies; this difference, however, should have increased the reinforcement associated with and the attractiveness of the Positive Practice condition.

The present studies also differed from Ollendick's in that older subjects were employed; the behaviors resulting in admission of subjects to residential treatment programs were different; the teacher was male and not female; the teacher and author employed self-monitoring checklists; difficulty of word sets was equated through use of The New Iowa Spelling Scale (Greene, 1954) whereas no such equating was reported by Ollendick; and treatment conditions were administered consecutively and not separated temporally (Ollendick et al. administered treatments during different parts of the day with time delays between treatments to decrease the likelihood of multiple treatment interference). In addition, Study 1 differed from Ollendick's study in that a group of subjects was treated; the words employed were generally more difficult; and the author was present as a reliability assessor.

Treatment Durations

Treatment duration analyses revealed that with a group of subjects in Study 1, Positive Practice consumed more teacher time than Own or

Specified Methods did. The teacher was required to remediate students individually rather than simultaneously. Positive Practice, however, consumed less student time than other active treatments. Students worked independently as their classmates were being remediated. When teacher time is at a premium, then Positive Practice is not the treatment of choice. With a single subject in Study 2, treatment duration for Positive Practice was intermediate to that of Own and Specified Methods; its absolute value, however, was within the range obtained for individual subjects in Study 1 when number of sessions were equated across studies. Treatment durations for Own and Specified Methods in Study 2 were shorter than those obtained in Study 1. Rather than concluding that the duration of Positive Practice treatment was longer in Study 2 than in Study 1, it may be more reasonable to suggest that treatment durations of Own and Specified Methods were differentially shortened to a greater degree than Positive Practice in Study 2. Differential shortening of duration time was likely to have been due to a decrease in test correction time for Own and Specified Methods but not for Positive Practice. Test correction procedures were identical for Positive Practice in both Study 1 and Study 2; they were however, shortened in Study 2 for Own and Specified Methods to the extent allowed by a decrease in number of subjects.

In both studies, treatment duration was shorter for Own Method than Specified Method whether comparisons were made for all sessions or just the last few sessions during Alternating Treatments. Thus, differ-

ences maintained even when treatment durations became more constant across sessions as they did during the last few sessions of Alternating Treatments. Differences, however, were small. Own Method duration was probably shorter because the teacher correction of tests associated with it was less time consuming than the student correction associated with Specified Method.

Treatment durations were not reported by Ollendick et al. (1980). Ollendick's study differs from the present studies in that an attempt was made to equalize durations across treatments by stretching out shorter treatments. The present studies demonstrated that duration differences were inherent across treatments. The relative efficacy of treatment packages was assessed without attempting to control for duration differences.

In both of the present studies, treatment duration decreased from the beginning to ending sessions during Alternating Treatments. Decreases were greatest for Positive Practice, intermediate for Specified Method, and shortest for Own Method. Decreases for Own Method were probably due to increased student and teacher familiarization with the procedure across sessions. Familiarization also was likely to cause duration decreases with the other active treatments. Additionally for Specified Method, less time was spent instructing subjects in Student Correction and Specified Study Method procedures. Duration decreases for Positive Practice were due to remediation on fewer and fewer words across sessions. Greater decreases could occur for Positive Practice than either Own or

Specified Methods because remediation time was variable for the former and fixed for the latter.

Verbal and Actual Preferences

Ollendick et al. (1980) obtained verbal preferences for Positive Practice over other treatments from three out of four subjects. Only two of five subjects in the present studies verbally preferred Positive Practice. Three of five subjects actually chose Positive Practice. Non-correspondence between verbal preference and actual choice was found for two of four subjects in Study 1 (Risley and Hart, 1968; Lloyd, 1980). The importance of behavioral preference assessment is underscored by this noncorrespondence. No differences in preference for Positive Practice were consistently found between learning disabled and nonlearning disabled subjects as suggested by Ollendick et al. (1980, p. 653). Although three learning disabled subjects preferred Positive Practice, one of the two nonlearning disabled subjects also preferred this treatment.

Methodological Issues

Study 1 provides a model for establishing relative efficacies, behavioral preferences, and relative durations for several treatments utilizing single subject research methodology. It has been reported that "only one example of use of an STD [Simultaneous Treatments Design] exists in applied literature" (Barlow & Hayes, 1979, p. 202). A problem associated with use of the Alternating Treatments Design is the threat to external validity resulting from multiple treatment interference (Barlow & Hayes, 1979). Results obtained by rapidly alternating treat-

ment conditions in a counterbalanced fashion may not generalize to situations where only one treatment is employed. In Study 2, the word "purchase" from Set A apparently interfered with the correct spelling of "precious" in Set C. "Precious" was misspelled as "pu" in four of 10 attempts, as "pur" in three attempts, and as "purchase" in another during Alternating Treatments. Misspellings continued during Most Effective Treatment as "pur" in four of nine attempts, as "purch" and "pachase" in two others and as "purchase" in two additional trials. Future studies employing the Alternating Treatments Design for evaluating spelling instructional treatments should eliminate words with similar spelling from lists. Barlow and Hayes (1979) advise separating treatment conditions temporally as Ollendick et al. (1980) did to decrease interference.

Another difficulty associated with the Alternating Treatments Design in the present studies was that only a small number of words could be placed in each word set. Ceiling effects associated with 100% test scores were thus rapidly obtained. Future studies could compare fewer treatments with more words in each set. Number of words spelled correctly may become a more sensitive indicator of differential treatment effects as number of words per word set is increased.

Finally, a second observer would be preferable to the teacher serving as a self-monitoring reliability assessor. Treatment compliance reliability was generally higher in Study 1 during the first two phases than during the last two phases. Most observer disagreements occurred when the teacher failed to self-record and the author recorded compliance with treatment. It was difficult for the teacher to simultaneously self-

monitor compliance and implement treatment. Possible reactivity associated with teacher self-monitoring might decrease if the teacher checklist were used to simply prompt compliance without also measuring it.

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APPENDIX A

REVIEW OF RESEARCH ON TRADITIONAL STRATEGIES FOR TEACHING SPELLING

APPENDIX AREVIEW OF RESEARCH ON TRADITIONAL STRATEGIES FOR TEACHING SPELLING

What follows are descriptions of traditional strategies for teaching spelling, summaries of research findings associated with each strategy, and reference citations.

I. Incidental Approach

The incidental approach entails learning spelling without specific instruction, through instruction in other areas such as vocabulary and reading. Despite high positive correlations between spelling and other subjects, a review of the literature discloses that many words are misspelled without direct instruction; thus, the incidental approach is not a research-supported strategy (Plessas & Ladley cited in Allred, 1977).

II. Word Selection

Guidelines for selection of words to be taught in a spelling program have included: (1) choosing words for a given grade on the basis of the frequency with which they appear in the writing of children at that level, and (2) choosing words used frequently in adult writing, thereby insuring both current and future value of words selected (Horn cited in Allred, 1977). Studies have revealed that 10 words account for 25% of all words that children use in their writing, 100 words account for 60%, 1,000 words account for 89%, 2,000 words account for 95%, and 3,000 words account for 97% (Horn; Rinsland cited in Allred, 1977). Similarly, 100 words account for 58.8% of all words that adults use in their writing, 1,000 words account for 89.6% of all words, 2,000 words account for 95.4%, and 3,000 words account for 97.7%.

A set of 4,000 words can be selected (1,000 used frequently by children, 1,000 used frequently by adults, and 2,000 used frequently by adults and children) which include 97% of all words used frequently by children and adults in their writing. Through one objective for an elementary school spelling program, the learning of approximately 2,800 to 3,000 targetted words by the end of the sixth-grade has been specified as generally desirable (E. Horn cited in Fitzsimmons & Loomer, 1978, p. 7). Word lists to be consulted are found in The Vocabulary, Spelling Errors, and Situations of Fourth, Fifth, and Sixth Grade Children's Letters Written in Life Outside the School (Fitzgerald, 1931), A Basic Vocabulary of 10,000 Words Most Commonly Used in Writing (Horn, 1926), A Basic Vocabulary of Elementary School Children (Rinsland, 1945), and The New Iowa Spelling Scale (Greene, 1954). A basic program of some 3,000 to 4,000 words can be reduced in half in high ability schools; emphasis may then be placed on teaching high-frequency, perseveringly difficult words while allowing easier words to be learned incidentally (Fitzsimmons & Loomer, 1978).

To conclude, the research has supported teaching of the highest frequency words employed in child and adult writing (Thorndike; E. Horn; Hollingsworth; T. Horn cited in Fitzsimmons & Loomer, 1978) and has not supported teaching words derived from various curricular areas as a means of increasing spelling ability (E. Horn; Fitzgerald; T. Horn cited in Fitzsimmons & Loomer, 1978).

III. Presenting Words In List Form

Presenting spelling words in list form entails having students study words from lists as opposed to from within sentences or paragraphs. Presenting words in context reflects a confounding of spelling and vocabulary instruction. List presentation presents each word as a separate spelling problem. A suggested method of list presentation involves having the teacher say a word, use the word in a sentence, and repeat the word; the student writes only the word (Allred, 1977). Numerous studies demonstrate the superiority of list over sentence or paragraph presentation (Hawley & Gallup; E. Horn; Mc Kee; Strickland; Winch cited in Fitzsimmons & Loomer, 1978).

IV. Synthetic/Analytic Approaches and Presentation of Words with "Hard Spots" Marked

A synthetic approach to spelling refers to the practice of "concentrating on the total word as a specific and individual problem"; through the analytic approach, the speller alternately concentrates on the "likenesses and differences of individual letters within the word" (Fitzsimmons & Loomer, 1978, p. 59). Advocates of both approaches predict improved spelling performance contingent on use of their method.

Marking "hard spots" is an instructional practice derived from the analytic approach. Through this practice, difficult parts of words being studied are somehow accentuated (e.g. through coloring) to call students' attention to them. Conclusions from one study on marking "hard spots" were summarized as follows:

After a study of over 4,000 pupils in grades four, five and eight involving a half-million spellings, one is impressed with the consistency with which the data show that marking hard spots is of little or no value. The essential fact in spelling is to write all the letters and have them in the right order. Anything that diverts from this does harm. The fact stands out that the pupils who studied words with the hard spots marked made poorer scores than those who studied lists with the words unmarked. In other words, the people who advocate marking the hard spots are not only suggesting a useless device but possibly a harmful one. (Tireman cited in Fitzsimmons & Loomer, 1978, p. 8)

Marking "hard spots" has been recognized as a questionable practice in several other studies (Masters; Mendenhall; Rosemeier cited in Fitzsimmons & Loomer, 1978).

V. Presenting Non-Syllabified Whole Words

The whole word method involves teachers presenting spelling words visually or orally to students in a non-syllabified form. Visual presentation of syllabified words was not demonstrated to be superior to whole word presentation in general, when analyzed across word types (i.e. words (1) where syllabication was not patently associated with spelling, (2) difficult to pronounce, (3) containing double consonant difficulties, and (4) containing prefix and suffix difficulties), and when analyzed across superior and

inferior spelling ability students; for words which, if syllabified, might have caused spelling errors, syllabified presentation decreased performance (T. Horn cited in Fitzsimmons & Loomer, 1978, p. 17). Oral syllabified presentation afforded no advantage over whole word presentation although no negative effect was found for words which, if syllabified, might more readily be misspelled (Humphry cited in Fitzsimmons & Loomer, 1978, p. 18).

VI. Test-Study-Test Procedure

The test-study-test procedure involves administering a pretest to students prior to students studying their spelling words. This procedure contrasts with the study-test procedure where students do not take a pretest and simply study their spelling words prior to a terminal exam. Through the test-study-test procedure, students can isolate the words that they misspell and confine their studying to these words. Study time may be used more efficiently to learn the correct spellings of words previously misspelled rather than to overlearn the spellings of words already in students' repertoires. A future-orientation is adopted as an emphasis is placed on pupils improving their spelling performance over pretest levels.

Research findings (Blanchard cited in Fitzsimmons & Loomer, 1978) indicate that:

1. The test-study method was best for bright students in all grades.
2. The test-study method was best for average students from the middle of grade 3, on.
3. The test-study method was best for slow students from the beginning of grade 5, on.
4. The study-test method should be used in all cases not covered by the above. (p. 13)

A review of the literature (Blanchard cited in Fitzsimmons & Loomer, 1978) revealed that "twice as many studies favored the test-study method as favored the study-test method (Blanchard cited in Fitzsimmons & Loomer, 1978, p. 13). Numerous other reports (Blanchard; Fitzgerald; Hibler; Kingsley; Montgomery cited in Fitzsimmons & Loomer, 1978; Rieth cited in Allred, 1977) support the superiority of the test-study-test over the study-test method.

A variation on the test-study-test procedure has been suggested for use in the primary grades (Allred, 1977). The variation of preview test-study-test procedure allows pupils to look over words before taking a pre-test. Another possibility for primary grade pupils who "are able to spell none, or a very small percentage, of the assigned words" (Fitzgerald cited in Fitzsimmons & Loomer, 1978, p. 13) is use of the study-test method.

VII. The Corrected-Test Method

The corrected-test method involves the student's self-correction of his own spelling test. It has been indicated that "the technique works well" (Allred, 1977, p. 23) when the following steps are employed:

(1) the teacher or spelling partner says the spelling word, uses it in a sentence and repeats the word, (2) the student writes the word, (3) the examiner immediately spells the word, emphasizing each letter as the student points to it with his pen or pencil, (4) the student corrects his spelling errors, (5) steps one through four are repeated for each word on the spelling test, and (6) the student employs a method of systematic study on misspelled words to learn their correct spellings (Allred, 1977, pp. 23-24). The corrected-test procedure can be implemented by a teacher with his class

or by student dyads (Allred, 1977). Teachers will need to double check self-corrections from time to time to identify students who have difficulty using the corrected-test technique (E. Horn cited in Allred, 1977). The corrected-test has been described as a "...happy instance where group instruction and adjustments to individual differences are combined. The tests are given and corrected as a group exercise, but individual pupils are concerned only with their own special needs" (E. Horn cited in Fitzsimmons & Loomer, 1978, p. 11).

Research results and conclusions supportive of the corrected-test procedure include the following:

(1) As measured, by a final weekly test or by recall tests after an interval of seven days, the corrected test alone will contribute 90-95 per cent of the achievement resulting from the combined effect of the pronunciation exercise, corrected test and study; (2) in some classes the corrected test alone is sufficient for mastery or near-mastery of a typical spelling lesson by the upper third of the class; (3) the corrected test appears to be the most important single factor contributing to achievement in spelling. (T. Horn cited in Fitzsimmons & Loomer, 1978, p. 9)

Other research involving the corrected-test method indicates that it results in equal or better spelling achievement than do other methods, in less time (Beseler; Christine & Hollingsworth; Thomas cited in Fitzsimmons & Loomer, 1978); is effective across spelling words of different difficulties

and word lists of varying lengths (Tyson cited in Fitzsimmons & Loomer, 1978); results in mastery of the typical spelling lesson for the upper third of the class, in the absence of adjunctive techniques or study (Louis cited in Fitzsimmons & Loomer, 1978); and is effective when used in conjunction with the test-study method (Schoephoerster cited in Fitzsimmons & Loomer, 1978).

The following suggestions have been proposed to "make the corrected-test a vital rather than a routine experience" (E. Horn cited in Fitzsimmons & Loomer, 1978, p. 10):

1. Each pupil should understand that the test shows him which words he needs to study, thus affording intelligent motivation.
2. The pupil should be convinced that, by working carefully as he corrects his test, he can learn many new words in the process of correction.
3. Pupils should correct their own tests as the teacher spells each word aloud. This focuses the attention of the pupil on each word he has misspelled, as well as on the correct spelling of the word.
4. Time for the study of the words missed on the test should be provided as soon as possible, preferably immediately after the test has been corrected.
5. The teacher should give immediate help to individual pupils who have made many errors.
6. Results on the final tests should be compared with those on the first test to show what progress has been made. (E. Horn cited in Fitzsimmons & Loomer, 1978, pp. 10-11)

VIII. Systematic Study Method

Through a systematic study method, students follow a pre-specified, effective series of steps to learn the correct spellings of previously misspelled words. A systematic study method contrasts with a study procedure where students are allowed to devise their own individual procedures for learning correct spellings. The difficulty with non-systematic study methods has been summarized as follows:

Many children have trouble with spelling because they have never developed a systematic technique for approaching the mastery of new words. Poor spellers often try something different each time they are called on to try to master a new list. (Funk cited in Loomer, 1978, p. 20)

Spelling research supports the use of the following steps for learning the correct spelling of a word:

1. Pronounce each word carefully.
2. Look carefully at each part of the word as it is pronounced.
3. Say the letters in sequence.
4. Attempt to recall how the word looks and spell the word to oneself.
5. Check this attempt to recall.
6. Write the word.
7. Check this spelling attempt.
8. Repeat the above steps if necessary. (E. Horn cited in Allred, 1977)

Students often have difficulty applying procedures such as the ones specified above despite memorizing the steps. Simplified study procedures have been developed to overcome application roadblocks. One such procedure is outlined as follows:

1. Look at the word and say it softly. If it has more than one part, say it again, part by part, looking at each part as you say it.
2. Look at the letters and say each one. If the word has more than one part, say the letters part by part.
3. Write the word without looking at the book. (Gilstrap cited in Allred, 1977, pp. 24-25)

In a critical review of the three-step simplified study procedure proposed by Gilstrap, the following points were made:

The three steps include nearly all the elements of the eight study steps...

- [1] The eight study steps apply visual, auditory, kinesthetic/tactile senses in a productive way.
 - [2] To eliminate any of the steps might restrict the effectiveness of the approach.
 - [3] Perhaps simplified study procedures could be more functional, but there is need for evidence based on considerable research before we are justified in replacing any of these proven study steps.
- (Allred, 1977, pp. 24-25)

Another variation on the eight-step study method has been recommended (Loomer, 1978; Middleton, 1976); it consists of the following steps:

1. Look at the model.
2. Cover the model and write the word.
3. Check the word against the model.
4. If not correct, repeat 1, 2, and 3.
5. If correct, cover the word and the model and write the word again.

6. Repeat this procedure four or five times for each word to be studied. (Middleton, 1976, p. 20)

In addition, the following guidelines are suggested: "STUDENTS MAY NEED TO REPEAT THIS PROCEDURE SEVERAL TIMES DURING THE WEEK....teachers may need to guide the students through the study process on a daily basis" (Middleton, 1976, p. 20).

Finally, conclusions drawn from a number of studies support the inadvisability of allowing students to devise their own individual methods by which to study spelling words (Fitzgerald; Hildreth; E. Horn; T. Horn cited in Fitzsimmons & Loomer, 1978).

IX. Individualized Spelling Instructions

Individualized spelling instruction has been described as "an attempt to place students at the level of learning for which they are prepared and teach them according to proven methods of instruction, while permitting them to move at their own pace" (Allred, 1977, p. 30). Wide individual differences in spelling abilities within given grade levels have been revealed in the literature. In one study performed in 1913 (Buckingham cited in Allred, 1977, p. 15), in any given grade from the third through the eighth, pupils could be located whose spelling performances were at the third grade level and other pupils could be located whose spelling performances were at the eighth grade level. In a 1927 study of the schools of Duval County, Florida, including Jacksonville (Strayer cited in Allred, 1977, p. 15), a spread of 10 grade levels was reported in spelling ability of sixth graders. The range between the lowest and highest scores of those pupils in the middle 50% was 2 1/2 years at the sixth-grade level and 3 years at the eighth-grade level. The need for individualized instruction has been

cited by several writers (Dunne; Eisman; Hall cited in Allred, 1977, p. 31). The literature, however, reveals a paucity of studies where individualized instruction has been employed (Allred, 1977).

Use of individualized instruction has been reported to be beneficial (Edgerton & Twombly; Noall & Ceravala cited in Allred, 1977). Through several studies, the relative efficacy of individualized versus whole-class instructional approaches was evaluated; individualized instruction yielded equivalent or superior results in the primary and intermediate grades except with third grade low ability pupils (Allred, Baird, & Read cited in Allred, 1977, p. 31) and superior results in the sixth grade (Masoner cited in Allred, 1977, p. 31). No significant differences were found, however, between an individualized and a whole-class approach in another study conducted on eighth-grade students (Crosland cited in Allred, 1977, p. 31). Computer-assisted instruction (CAI) has been utilized successfully to individualize spelling instruction (Bubba & Thorhallsson; Demshock & Riedesel; Durrell, Sullivan, Murphey, & Junkins cited in Allred, 1977, p. 31). In one report, however, no significant performance differences were found in a comparison of CAI and non-CAI approaches (Demshock & Riedesel cited in Allred, 1977, p. 31). Individualization of spelling instruction may be accomplished in the future through CAI, tachistoscopes, and magnetic tape recorders (Allred, 1977).

One method for individualizing instruction is employed in the Cedar Rapids Spelling Program in conjunction with the test-study-test, self-correction, and systematic study methods (Middleton, 1976). Students in any grade between two and twelve are administered grade-appropriate leveling exams. On the basis of exam performance, spelling instruction is individualized

by presenting students with words from lists of varying difficulty:

(1) elementary school students in grades two through six are instructed to spell words from either easy, average, or accelerated word lists, and (2) secondary school students in grades seven through twelve are instructed to spell words from lists of the following difficulty levels:

Level 1 - Difficult

Level 4 - Below average

Level 2 - Above average

Level 5 - Easy

Level 3 - Average

Level 6 - For the non-speller

No more than three lists of different difficulties are to be employed simultaneously in any one classroom.

Suggestions have been offered for assisting the low spelling ability student (Fitzsimmons & Loomer, 1978). These include (1) isolating the factors causally related to low ability: "Lack of interest, poor proof-reading skills, little writing ability, no direction concerning what words are in need of additional study, dawdling, no method of attacking a word, ... improper use of the self-correction technique, ... or organic deficiencies (sight, hearing, motor ability (Fitzsimmons & Loomer, 1978, p. 60), (2) stressing the use of systematic study steps, and when indicated (3) divide the student's weekly spelling list into two or three smaller lists thereby increasing the manageability of the learning task.

X. Rote Writing

Rote writing refers to the study method whereby students write misspelled words repeatedly in the absence of intervening attempts to recall these words. The following opinion regarding the rote study method has been expressed by two spelling researchers: "The practice of having a child copy a word five times or ten times, encourages poor habits and attitudes" (Petty &

Green cited in Loomer, 1978, p. 9). The value of intervening recall in both initial and review spelling sessions has been demonstrated (Abbott; Horn cited in Fitzsimmons & Loomer, 1978, p. 23). An effective, systematic spelling study method provides teachers with an alternative to the rote method (E. Horn cited in Allred, 1977, p. 24).

XI. Air Writing

Air writing refers to a study procedure whereby the pupil moves his arm, hand, and fingers in front of himself to trace out letters of spelling words being studied. In regards to air writing, the following statement has been issued:

The practice of writing words in the air is of doubtful value. This practice takes time and does not give the child a realistic image of the word. Supposedly this practice is to give a kinaesthetic impression of the word, but the result is questionable, since arm and hand movements are generally not the same as in writing a word. A kinaesthetic impression may be useful to a few very poor spellers, but such impression could better be gained through finger-tip impression in sand or on the blackboard. (Petty & Green cited in Fitzsimmons & Loomer, 1978, p. 23)

The tenor of other researchers has been similar:

Its [air writing's] greatest danger lies in the fact that it does not allow the child to form a realistic image of the word as does writing it on paper.... This same criticism is also applied to the practice of having the child spell orally. (Fitzsimmons & Loomer, 1978, p. 60)

XII. Teaching Word Meanings

Teaching word meanings refers to the practice of designing instruction such that students learn the meanings of their spelling words. One study demonstrated "very little, if any, correlation between spelling ability and knowledge of meanings of words" (McKee cited in Loomer, 1978, p. 4). One researcher concludes "Since the words taught in the first six grades are those most often used by children in writing, most of these words are familiar to the children. The arbitrary practice of teaching the meaning of each word is therefore a wasteful practice" (E. Horn cited in Fitzsimmons & Loomer, 1978, p. 32). The unnecessary nature of vocabulary instruction for a majority of spelling words has additionally been recognized by others (T. Horn; Petty cited in Fitzsimmons & Loomer, 1978).

XIII. Time Allotments for Study

Time allotments for study refers to an optimal duration of time for pupils to spend learning their spelling words. Intermediate grade children were shown to benefit as much from 20-minute daily spelling periods as they did from 40-minute periods (Jarvis cited in Allred, 1977). A majority of earlier findings indicated that study allotments of more than 75 minutes per week prove to be of no advantage to pupils, and that even this duration could be diminished (E. Horn cited in Allred, 1977). A reduction in weekly study time from 100 minutes (five 20-minute daily periods) to 60 minutes (three 20-minute daily periods) resulted in a little adverse effect on achievement among fourth-, fifth-, and sixth-graders (Larson cited in Fitzsimmons & Loomer, 1978). In the interest of utilizing precious classroom time most efficiently, it has been suggested that "Time allotted for the

study of spelling in excess of 60 minutes a week may be spent more advantageously in other areas" (T. Horn cited in Fitzsimmons & Loomer, 1978, p. 12). During the time that is allotted for spelling study, "What is needed is not more time but spirited, efficient use of instructional procedures" (E. Horn cited in Fitzsimmons & Loomer, 1978, p. 12). In summary, the practice of allowing spelling time allotments to vary according to each child's need is not supported by the literature. The following explanation is offered as to why research supports a 60 to 75 minute optimal weekly time allotment for spelling study in most situations:

The reasons for these findings are related to interest and motivation. The task of learning to spell resembles that of reading the dictionary: the subject might be of interest, but the plot changes too often. It is more efficient to involve students in a highly motivating spelling experience for a short period of time than it is to involve them in successive, lengthy daily experiences of study and practice. (Allred, 1977, pp. 32-33)

XIV. Phonic Instruction

Phonics is actually a method of reading instruction through which a student is instructed in how to assign correct speech sounds or phonemes (e.g. the "schwa" or /ə/ sound in nut or alone, the /s/ sound in source or less, etc.) when reading corresponding written symbols of graphemes (e.g. the letter "u" in nut or the "a" in alone, the letters "ce" in source or the "ss" in less, etc.). Phonics is also a term used to describe a method of spelling instruction in which the phonics reading instructional sequence is reversed. The student is taught to assign correct graphemes (e.g. the

letter "u" in nut and "a" in alone) after thinking or hearing corresponding phonemes (e.g. the "schwa" or /ə/ sounds in nut and alone). In linguistics, a rule which provides information regarding phoneme-grapheme relationships is termed a phonetic rule or principle. The utility of instruction in phonics and the application of phonetic spelling principles was described as follows:

A child's knowledge of phonetic principles plays an important role in his being able to spell, but instruction in phonics is an aid to spelling and not a substitute for the systematic study of words in the spelling list. (E. Horn cited in Allred, 1977, p. 26)

One cited inadequacy of phonics is that the student may be unable to discriminate one phoneme from another (e.g. the short /e/ sound in hem from the short /i/ sound in him, the /rm/ sound in harm or the /rl/ sound in snarl from the unitary /m/ or /l/ sound, etc.) (Allred, 1977).

Additional inadequacies associated with phonic instruction have also been enumerated:

1. Over one-third of the words in A Pronouncing Dictionary of American English have more than one acceptable pronunciation due to regional and cultivated differences.
2. Many different spellings can be given most sounds and even the most common spellings have numerous exceptions.
3. A majority of words contain silent letters, and about a sixth are spelled with double letters even though only one of the letters may be pronounced.

4. Responses become uncertain when more than one reasonable choice is available, such as "bizzy for busy, honer for honor."
5. Unstressed syllables characterized by the schwa or short i sound are very hard to spell by sound.
6. Any spelling rule, phonetic or orthographical, can be used incorrectly as well as correctly.
7. Some spelling elements are fairly consistent such as word positions and the adding of prefixes and suffixes. More adequate evidence is needed to realize the value of relating sounds to symbols. (E. Horn cited in Fitzsimmons & Loomer, 1978, pp. 19-20)

Research evidence to support or refute the criticisms leveled at phonic instruction is notably lacking. In one report (Jackson cited in Fitzsimmons & Loomer, 1978), no statistically significant differences in spelling achievement were found between experimental classes receiving extra phonetic instruction and control classes not receiving this instruction. It was concluded that the increase in instructional time required by the experimental classes was not sufficiently warranted. A review of this study (Fitzsimmons & Loomer, 1978), however, indicates that negative results may have been attributable to "inefficient teaching methods" (Fitzsimmons & Loomer, 1978, p. 21). Additional research that is relevant to phonic instruction is cited in Section XVI on the Linguistic Method.

XV. Spelling Rules

Spelling rules refer to any principles which guide the speller to correctly select a grapheme which corresponds to a given phoneme. Spelling rules include but are not limited to phonetic principles. Some rules govern

such operations as the addition of suffixes, pluralization, abbreviation, insertion of apostrophes, utilization of capital letters and silent "e's," sequencing of letters within a word, etc. Many rules utilize information on the formal characteristics of words to guide the speller. For example, the correct spelling of suffixes is governed by what letter the root word ends in, whether this letter is preceded by a vowel or consonant, the number of syllables in the word, which syllable is accented, etc.

Criteria have been proposed for determining which spelling rules should be taught and which should not. Recommendations regarding rules for adding prefixes and suffixes were stated as follows:

A very large proportion of the words written by adults and children contain prefixes and suffixes added to English base words. These derived forms tend to be harder than base words, and in some instances very much harder. It seems reasonable to expect that some attention to the way in which prefixes and suffixes are added to base words would improve the spelling of derived forms as well as expand the students' written vocabulary. (Thorndike cited in Fitzsimmons & Loomer, 1978, p. 19)

The value of teaching rules, principally relating to the addition of suffixes, has been supported by the literature (Archer; Fitzgerald; Foran; King; Sartorius cited in Fitzsimmons & Loomer, 1978).

Criteria have been proposed regarding whether or not a phonetic rule should be taught; stipulations require that the "rule can be easily taught, that it will be remembered, and that it will function in the stress of actual spelling" (E. Horn cited in Fitzsimmons & Loomer, 1978, p. 19).

A comprehensive list of standards governing rule use were enumerated as follows:

1. Only a few rules should be taught. Those taught should have no or few exceptions.
2. Some rules should be taught, for children will generalize what they have learned and such generalizing should be directed as far as the spelling of English words permit.
3. Only one rule should be taught at a time.
4. A rule should be taught only when there is need of it.
5. The teaching of the rules should be integrated with the arrangements or grouping of the words in the textbook.
6. Rules should be taught inductively rather than deductively.
7. There should be ample reviews of the rules both in the grades in which they have been learned and in the following grades.
8. Tests of knowledge of the rule should insist not so much upon logical precision as on comprehension and ability to use the rule. (Foran cited in Allred, 1977, pp. 26-27)

A more recent summary statement specifying guidelines for rule selection and use follows:

Knowing a given rule may furnish a child with a clue to how a word is spelled, but because of the complexity of the language and the many exceptions to most rules, a compromise must be made between learning enough rules to give a system for spelling and learning so many rules that they become a burden. Rules cannot be considered a central approach to the spelling

problem, but if they are approached reasonably and derived inductively, they are helpful to many learners. (Blake & Emans cited in Allred, 1977, p. 27)

The following is a set of rules, most of which can be employed with few exceptions in a manner compatible with the latter guidelines:

1. Some rules governing the addition of suffixes and inflected endings are:

- a. Words ending in silent e drop the e when adding a suffix or ending beginning with a vowel and keep the e when adding a suffix or ending beginning with a consonant.

bake	manage
baking	managing
baker	management

- b. When a root word ends in y preceded by a consonant, the y is changed to i in adding suffixes and endings unless the ending or suffix begins with i.

fly	study
flies	studying
flying	studious
	studies

- c. When a root word ends in y preceded by a vowel, the root word is not changed when adding suffixes or endings.

play	monkey
playful	monkeys

- d. When a one-syllable word ends in a consonant with one vowel before it, the consonant is doubled before adding a suffix or ending beginning with a vowel.

run	ship
running	shipping
	shipment

- e. In words of more than one syllable, the final consonant is doubled before adding a suffix or ending if: (1) the last syllable is accented, (2) the last syllable ends in a consonant with one vowel before it, and (3) the suffix or ending begins with a vowel.

begin	admit
beginning	admittance

2. The letter q is always followed by u in common English words.

queen	quiet
-------	-------

3. No English words end in v.

love	glove
------	-------

4. Proper nouns and most adjectives formed from proper nouns should begin with capital letters.

America American

5. Most abbreviations end with a period.

etc. Nov.

6. The apostrophe is used to show the omission of letters in contractions.

don't haven't

7. The apostrophe is used to indicate the possessive form of nouns but not pronouns.

boy's its
dog's theirs

8. When adding s to words to form plurals or to change the tense of verbs, es must be added to words ending with the hissing sounds (x,s,sh,ch).

glass watch
glasses watches

9. When s is added to words ending in a single f, the f is changed to v and es is added.

half shelf
halves shelves

10. When ei or ie are to be used, i usually comes before e except after c or when sounded like a. (Note these exceptions: leisure, neither, seize, and weird.)

believe neighbor
relieve weigh

(Read, Allred & Baird cited in Allred, 1977, pp. 27-28)

The research literature reveals studies which fail to support instruction in spelling rules as well as studies which support the practice. The relative efficacy of spelling instruction involving direct drill without rule training versus spelling instruction with rule training was directly assessed (Turner cited in Fitzsimmons & Loomer, 1978). Results with two matched groups of 16 students favored the direct drill instruction.

Other researchers have investigated the extent to which rules are actually utilized by students. In a group of 20 pupils, 2 offered no rules, 4 offered 48 rules, and the remaining 14 pupils offered numbers of rules between these upper and lower limits (Sartorius cited in Fitzsimmons & Loomer, 1978). With college and high school students who had previously learned seven spelling rules, only one of these rules was found valuable; it stated, for "words ending in ie, such as lie, change the ie to y before adding the suffix ing" (Cook cited in Fitzsimmons & Loomer, 1978, p. 20).

Additional studies have brought into question the ability of students to correctly apply rules. Fifth- and seventh-grade students misapplied rule generalizations from one type of word to others (Archer cited in Fitzsimmons & Loomer, 1978). Unsatisfactory results were obtained in another study involving only a small number of rules. Doubt was cast on the feasibility of instruction in the large number of rules required for comprehensive spelling proficiency (King cited in Fitzsimmons & Loomer, 1978). Following a study of generalization in spelling, caution was called for regarding rule instruction until experimental evidence supporting the practice was forthcoming (Sartorius cited in Fitzsimmons & Loomer, 1978).

The superiority of spelling instruction employing rules over drill learning was demonstrated in two related studies (Watson cited in Fitzsimmons & Loomer, 1978). In the first study, performances of individual high school students receiving alternate treatments were compared; in the second study group, comparisons of two different high school classes were employed.

Statistically significant results were obtained favoring instruction in one spelling rule (Archer cited in Fitzsimmons & Loomer, 1978). The rule had wide applicability and instruction utilized both inductive and deductive procedures. The importance of both prudent rule selection and effective teaching methodology was highlighted as follows:

We must ... recognize that the question as to how a rule is taught is just as important as what is taught.

We must develop the rule in a psychological manner and teach it in a way that will function in the words to be spelled. (Archer cited in Fitzsimmons & Loomer, 1978, p. 21)

Intelligence of students, like teaching methodology, has been isolated as a variable which might partially explain the conflicting results obtained in spelling rule studies. Superior phonetic generalization skill was invoked to explain the fewer errors made in rule application by bright children relative to dull children (Carroll cited in Fitzsimmons & Loomer, 1978).

The helpful and short-cut nature of common spelling rules has been contended (Lester cited in Fitzsimmons & Loomer, 1978). To summarize, however, the bulk of evidence currently supports a very limited use of spelling rules in instructional programs.

XVI. Linguistic Method

The traditional spelling instruction process is characterized by rote learning with minimal reliance on rules. (cf Allred, 1977; Fitzsimmons & Loomer, 1978) The linguistic approach represents a radical departure from the traditional approach; through the former, the student is taught to employ (1) phoneme-grapheme correspondences, (2) morphological and contextual cues, and (3) word borrowing principles as guides to correct spelling (Hanna, Hodges, & Hanna, 1971). The preceding linguistic terms are illustrated in the text below.

Phoneme-grapheme correspondences refer to the sound-letter relationships in words previously described in section XIV: Phonic Instruction. To reiterate, the sound /f/ may be spelled f in farm, ph in sphere, ff in off and gh in cough. The probability that a given phoneme (e.g. /f/) is spelled with a given grapheme (e.g. f, ph, ff, and gh) can be better predicted at times by determining (1) the position of the phoneme in the word (i.e. at the beginning, middle, or end of a given syllable), and (2) whether or not the syllable the phoneme appears in is accented (stressed) or unaccented (unstressed).

Morphology is the study of the "word-building" properties of a language. Through utilization of morphological cues, the probability of spelling certain types of words correctly should increase above the level achieved through phoneme-grapheme analyses alone. For example, morphological analyses enhance simple phoneme-grapheme prediction of correct spelling for both (1) compound words (e.g. playground becomes playground) and (2) words composed of affixes and roots (e.g. adress becomes address) (Hanna, Hodges & Hanna, 1971).

Contextual cues are found in the words which precede and follow a word to be spelled; they determine which spelling of a homonym is to be employed (e.g. bare or bear; peer or pier; aisle, isle, or I'll; etc.).

Through knowledge of word-borrowing principles, the probability of correctly spelling words borrowed from other languages should increase above phoneme-grapheme analysis levels. For example, a phoneme-grapheme analysis alone would lead to an incorrect spelling of the word "mosquito" as "mousketo" if the speller were to employ English phoneme-grapheme rules. Since mosquito is derived from Spanish, different phoneme-grapheme rules must be utilized since lender languages are characterized by some phoneme-grapheme correspondences that differ from those found in English. Borrowed words may retain their original spellings to a greater or lesser extent; thus knowledge of word-borrowing principles is vital if their correct spellings are to be accurately predicted.

The most detailed of basic research associated with linguistic generalizations has emanated from Stanford University (Hanna & Moore; Hanna and others cited in Fitzsimmons & Loomer, 1978). The Stanford group's basic position is summarized as follows:

The American-English orthography [system of spelling] is an alphabetically based orthography, i.e. it employs graphic symbols to represent the speech sounds, the phonemes, of language. And although our orthography does not perfectly conform to the alphabetic principle that one and only one graphic symbol shall represent each phoneme, there is a more consistent relationship between sounds and letter representations than has traditionally been thought. (Hanna, Hodges & Hanna, 1971, p. 97)

A 1953 study by the Stanford group (Hanna & Moore cited in Fitzsimmons & Loomer, 1978) was designed to investigate the consistency of phoneme-grapheme correspondences in a 3,000 word elementary school child's spelling vocabulary. A high degree of consistency was reported with one finding indicating that four-fifths of the vocabulary's phonemes were represented by a regular spelling. This study has been used to support a linguistic approach to instruction where spelling rules are taught for representing phonemes with given graphemes. Significant criticism has been leveled at this early Stanford research (E. Horn; Petty cited in Fitzsimmons & Loomer, 1978) in response to the interpretations that were extracted from the results.

In a landmark 1964 study known as Project 1991 (Hanna & others cited in Hanna, Hodges & Hanna, 1971), the phoneme-grapheme correspondences of 17,000-plus words (a core vocabulary comprised of most words employed by educated speakers and writers) were analyzed. The percentage of times given graphemes were found to represent a given phoneme in these words were calculated (a) without considering phoneme word position and syllable stress information, (b) considering phoneme position information alone, and (c) considering phoneme position and syllable stress information together. Conclusions from the study were capsulized as follows:

The Stanford study ... pointed up the basically alphabetic nature of American-English spelling. It showed that, contrary to traditional viewpoints, the orthography is far from erratic. It is based upon relationships between phonemes and graphemes- relationships that are sometimes complex in nature but which, when clarified, demonstrate that

American-English orthography, like that of other languages, is largely systematic. (Hanna, Hodges & Hanna, 1971, p. 83)

In a second phase of Project 1991, an algorithm or set of spelling rules was derived from the findings of phase one of the study. A computer was programmed to spell the 17,000 words previously analyzed. The algorithm reflected information garnered on (1) simple phoneme-grapheme relationships, (2) the effect of position of a phoneme in a syllable, (3) the effect of syllabic stress upon selection of graphemic options, and (4) variables termed "internal constraints" which included the effects of a particular phoneme following another in a word. The computer spelled 49.8% of the words correctly, 37.2% with only one error, 11.4% with two errors, and 2.3% with three or more errors. The researchers concluded, "Even a limited knowledge of the phonological [relating to the study of speech sounds] relationships between sounds and the letters of the orthography can provide the power to spell literally thousands of words" (Hodges & Rudorf cited in Fitzsimmons & Loomer, 1978, p. 22). In addition, "Undoubtedly, with refinement of the algorithm [through consideration of morphological, word-borrowing, and contextual information], a second run through the computer would have resulted in an even greater percentage of correctly spelled words" (Hanna, Hodges & Hanna, 1971, p. 94). Commenting on implications of Project 1991 for spelling programs, the researchers indicated the following:

Such principles reflected in the algorithm along with further refinements, could become a part of the pupil's spelling repertoire and be applied in spelling words he could pronounce but whose spellings may be unfamiliar. Reinforced by good habits of proofreading, his functional awareness of the alphabetic nature of our writing system could free him from rote memorization of each word. (Hanna, Hodges & Hanna, 1971, p. 97)

Word selection and gradation strategies based on linguistic principles have resulted from Project 1991. The latter study has been criticized as was its 1953 predecessor:

Any rush to immediately translate the findings of the Stanford Study into textbook form would seem premature. There have been no data reported as yet which would provide answers to such questions as:

- (1) which phonological generalizations have the greatest potential value for students learning to spell;
- (2) which generalizations should be taught and which would be left to the student to discover;
- (3) which generalizations are likely to be misapplied;
- (4) to what extent can students establish generalizations intuitively (and may yet be unable to state them) and successfully apply them in writing.

Research attention should now be directed to obtaining answers to the above questions. Some beginnings have been made. In addition, further analyses of the data are needed by linguistic specialists. (T. Horn cited in Fitzsimmons & Loomer, 1978, p. 22)

Selection and gradation of words based on linguistic principles may displace considerations based on child and adult writing needs. Caution regarding the repercussions of basing spelling programs on linguistic considerations has been voiced: "No evidence has been reported concerning the effectiveness in actual classrooms of word selection based on linguistic principles" (T. Horn cited in Fitzsimmons & Loomer, 1978, p. 23). Another reviewer surmised the following:

The results of this [the Stanford studies] and related research on the structure of the language have caused several authors and publishers to assume that if the findings are applied to spelling programs and instruction, students will learn to spell better than they have from previously used programs. Though this possibility exists, a thorough review of the literature reveals a need for extensive research on the subject as it relates to student growth in spelling ability.... Educators have done what they are often accused of doing: adopting practices before their effectiveness has been established through adequate testing.... Some sounds occur with so many varied spellings that attempting to apply generalized statements to them is more confusing than helpful. (Allred, 1977, pp. 29-30)

Despite critical heralding of linguistically-based programs, the linguistic approach in addition to individualized instruction, have been acknowledged as the two forces that have exerted the "greatest impact on spelling programs and practices during the past decade" (Allred, 1977, p. 29).

XVII. Workbooks

The content of workbooks reflects the content of contemporary spelling programs. Spelling programs generally dichotomize into two types: (1) traditional and (2) linguistic. Traditional programs employ lists of words used frequently in student writing. Learning occurs through the student developing a visual image of the word (seeing it covertly) and an aural image of the word (hearing it covertly) and employing a systematic method of study such as one described in Section VIII: Systematic Study Method.

Linguistic programs emphasize use of phonics and phonetic principles. Words may be grouped together for study in phonemic families (e.g. words where the /f/ phoneme is represented by the "ph" grapheme such as cough, rough, tough, etc.; words where the /əbəl/ phoneme is represented by the "able" grapheme such as agreeable, laughable, laudable, etc.). Words illustrating accurate phoneme-grapheme correspondences are highlighted.

Traditional and linguistic programs will, however, share features such as pre testing, self correction of test, systematic word study, etc.

Wide variability exists in the features offered by various workbook programs; some of these more prevalent features have been enumerated as follows:

1. Method presenting words.
2. Procedures suggested for word study.
3. Emphasis on phonics.
4. Relationship of spelling to reading and handwriting.
5. Use of rules for spelling.
6. Selection of words to be learned.
7. Grading of words (level or grade).
8. Indication of word difficulty.
9. Placement or grouping of words for instruction.
10. Method of showing spelling growth.
11. Procedures for diagnosing spelling deficiencies.
12. Standardized norms for evaluation.
13. Sensory modes employed (visual, oral, aural, haptic, or kinesthetic).

(Fitzsimmons & Loomer, 1978, p. 57)

Variability in workbooks has been attributed largely to publishers being remiss in requiring that programs reflect research-supported practices (Fitzsimmons & Loomer, 1978). A recommendation has been forwarded that workbooks not be employed precisely as designated, to insure that students derive optimal benefit from them (Loomer, 1978).

XVIII. Role of Learning

The role of learning in spelling instruction refers to variables which facilitate spelling skill acquisition and maintenance. One such variable is the point during which a given word is to be introduced for instruction in a program; three guidelines for choosing such a point have emerged: (1) utility of the word for the child, (2) the difficulty level of a word where more difficult words are deferred for later introductions,

and (3) the phonetic difficulty of a word due to the nature of its phoneme-grapheme correspondences (Fitzsimmons & Loomer, 1978). Word difficulties have been catalogued by age or grade levels in The New Iowa Spelling Scale (Greene, 1954) and the Iowa Tests of Basic Skills (Lindquist, Hieronymus & others, 1975).

Once spelling words have been sequenced in a program, spelling instruction can function to promote either (1) growth of spelling ability or (2) maintenance of spelling ability. Growth goals tend to be neglected in favor of maintenance goals. A prudent balance of instruction for spelling growth and maintenance should result in performance increases on standardized tests. Two suggestions have been presented to improve spelling instruction (Fitzsimmons & Loomer, 1978): (1) students should maintain an ongoing log of words which they tend to misspell as an aid to spelling growth and (2) programs should contain provision for periodic reviews of words of known difficulty (as assessed through inventory or standardized tests or through consultation with The New Iowa Spelling Scale) to promote maintenance goals.

The following teaching practices have been supported by the research and underscore the role of learning in spelling instruction.

1. Utilize words that are frequently needed by pupils, thus providing a needed stimulus.
2. Provide proper visual and oral opportunities to see and hear the word.
3. Immediate reinforcement of the word through self correcting is essential.
4. Provide systematic reinforcement of the word; preferably in many different situations.

5. In addition, provide meaningful opportunities for systematic recall of the word. Mainly through periodic assessment and functional writing.
6. Accurate spelling ability is most likely the result of "overlearning" which fixes the word image in the pupil's mind. (Fitzsimmons & Loomer, 1978, pp. 56-57).

XIX. Motivation to Learn

Motivation to learn refers to the types of incentives offered to students to stimulate growth and maintenance of spelling ability. Numerous studies support the use of intrinsic incentives for learning to spell (e.g. positive attitudes and interest) over extrinsic incentives (e.g. school grades and competition) (Columba; Diserns & Vaughn; Forlano; E. Horn; D. Russell; Sand; Thorndike cited in Fitzsimmons & Loomer, 1978). The following factors have been cited as important for the maintenance of positive student attitudes:

1. The teacher's positive attitude toward spelling.
2. Spelling's being properly emphasized in the total curriculum.
3. Specific standards for proofreading, neatness, and spelling application.
4. Spelling kept in proper perspective in the total composition program, especially in the creative writing experiences.
5. Provision made for daily spelling instruction. (Loomer, 1978, p. 20)

XX. Spelling Games and Devices

Spelling games refer to activities such as spelling bees and special devices refer to instruments such as small computers on which children can enter word spellings and receive feedback on correctness. Research has

indicated that students may derive benefit from some of these activities and instruments (Fitzgerald; E. Horn; T. Horn cited in Fitzsimmons & Loomer, 1978). Their role in a spelling program, however, has been relegated to that of a stimulator of student interest (Loomer, 1978). Games and devices should serve in an adjunctive and not a preemptive capacity in systematic instruction (Loomer, 1978). In addition, it has been recommended that adjunctive instructional modalities "should be meaningful [whereas] too often they are not" (Loomer, 1978, p. 13).

XXI. Testing

Comprehensive testing programs to assess spelling achievement have been recommended (Fitzsimmons & Loomer, 1978). Teacher made, inventory, and standardized tests should all be utilized along with class-, school-, and system-wide norms. Normative results are useful in specifying objectives for student achievement. A comprehensive, well-designed program will enable assessment of both spelling ability maintenance and growth. Measures should be taken to insure proper testing.

Inventory tests ought to be designed for administration during the first or second week of each semester and at the end of the school year. They are to consist of roughly 50 words and be constructed at each different grade or spelling level. Words are to be systematically sampled from spelling vocabularies targetted for instruction during a given semester. Inventory tests will function to allow (1) assessment of student growth, (2) motivation of spelling achievement through accurate record keeping and performance feedback to students, and (3) placement of students in high- or low-achiever programs. Individual-, class-, and district-wide school norms are suggested for inventory tests.

Standardized spelling tests may not be designed to assess the spelling skills which a given school's program emphasizes. Thus standardized tests, unlike inventory tests, may not be well-suited to assess gains made in a given spelling program; they will, however, yield useful information on student performance relative to the population on which they are standardized.

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APPENDIX B

WORD LISTS, WORD DIFFICULTY LEVELS, AND INSTRUCTIONAL WEEKS

Last difficulty words for Subjects 1 and 2: More difficult words for Subjects 3 and 4

Set 1	Difficulty	Week	Set 2	Difficulty	Week
1. entertained	73	25	1. embroidery	34	25
2. confined	77	25	2. wretched	26	26
3. included	73	26	3. pervasive	26	26
4. screen	62	26	4. process	31	27
5. climbing	76	26	5. recommended	21	27
6. manufacturing	78	26	6. occasionally	27	27
7. slipped	72	26	7. accommodate	26	27
8. extends	71	26	8. enthusiasm	19	27
Set 3			Set 4		
1. same	46	27	1. shrewd	24	27
2. constant	23	27	2. melody	28	27
3. operating	39	27	3. to	6	27
4. soul	31	27	4. common	22	27
5. features	31	27	5. unduly	20	27
6. continued	72	27	6. consequently	34	27
7. designs	72	27	7. meditation	36	27
8. speaks	73	27			
Set 5			Set 6		
1. adopt	74	28	1. sporadically	31	28
2. exact	76	28	2. adequate	22	28
3. disgrace	71	28	3. attorneys	36	28
4. deduction	77	28	4. cylinder	25	28
5. regarding	73	28	5. drought	34	28
6. loss	76	28	6. allies	24	28
7. entirely	76	28	7. distinguished	32	28
8. engine	22	28	8. peril	37	28
Set 7			Set 8		
1. scarce	70	29	1. details	29	29
2. beautiful	62	29	2. tractable	21	29
3. listed	60	29	3. efficient	25	29
4. affair	70	29	4. recommended	21	29
5. linen	73	29	5. depicted	24	29
6. crew	74	29	6. distress	26	29
7. next	72	29	7. effortlessly	23	29
8. striking	75	29	8. dose	33	29
Set 9			Set 10		
1. solar	73	30	1. efficient	25	30
2. contents	72	30	2. aptitude	26	30
3. lively	72	30	3. cruise	13	30
4. situation	76	30	4. cassette	24	30
5. reminder	73	30	5. hunting	21	30
6. three	75	30	6. reflection	21	30
7. hostile	76	30	7. representative	24	30
8. notions	74	30	8. acknowledgment	27	30

APPENDIX B

WORD LISTS, WORD DIFFICULTY LEVELS, AND INSTRUCTIONAL WEEKS

Less difficulty words for Subjects 1 and 2: More difficult words for Subjects 3 and 4.

<u>Set A</u>	<u>Difficulty</u>	<u>Week</u>	<u>Set A</u>	<u>Difficulty</u>	<u>Week</u>
1. entertained	73	25	1. embroidery	34	25
2. confined	77	26	2. wretched	25	20
3. includes	79	26	3. perceive	28	26
4. scream	72	26	4. possess	31	17
5. climbing	76	25	5. inconvenienced	21	11
6. manufacturing	75	26	6. occasionally	32	22
7. slipped	72	26	7. accommodate	24	25
8. methods	71	26	8. enthusiasm	15	20
<u>Set B</u>			<u>Set B</u>		
1. sane	76	25	1. endeavor	24	21
2. constant	73	25	2. apology	26	21
3. operating	71	26	3. parliament	16	17
4. soul	82	26	4. analysis	22	26
5. features	72	26	5. competent	32	25
6. continued	77	26	6. undoubtedly	25	14
7. desired	72	25	7. consequently	34	27
8. speaks	75	25	8. memorandum	30	27
<u>Set C</u>			<u>Set C</u>		
1. adopt	74	25	1. approximately	21	20
2. exact	78	25	2. adequate	22	26
3. disgrace	71	26	3. attorneys	30	27
4. deduction	77	26	4. cylinder	25	24
5. regarding	73	25	5. wrought	34	20
6. loss	76	25	6. aisles	24	26
7. entirely	70	26	7. distinguished	32	26
8. cousins	73	25	8. peril	27	26
<u>Set D</u>			<u>Set D</u>		
1. scarce	70	25	1. descend	29	23
2. beautiful	72	26	2. inevitable	24	25
3. limited	80	25	3. affidavit	15	26
4. affair	78	26	4. recommendation	32	27
5. linen	73	26	5. equipped	24	20
6. crawl	74	26	6. desirous	26	21
7. swept	72	26	7. affectionately	23	26
8. striking	75	26	8. deem	33	27
<u>Set E</u>			<u>Set E</u>		
1. polar	71	25	1. efficient	25	21
2. contents	72	25	2. epistle	18	20
3. tardy	72	25	3. crisis	31	24
4. situation	78	25	4. committees	34	21
5. remainder	73	26	5. continuous	25	27
6. threw	75	26	6. indefinite	23	25
7. hospital	76	25	7. representatives	24	24
8. notices	78	25	8. acknowledging	32	23

APPENDIX C

LEVELING TEST WORDS, THEIR DIFFICULTY RANKINGS
AND LEVELS, THEIR WORD NUMBERS, AND SPECIFICATION
OF WHICH WORDS WERE SPELLED CORRECTLY BY EACH SUBJECT

APPENDIX C

LEVELING TEST WORDS, THEIR DIFFICULTY RANKINGS AND LEVELS, THEIR WORD NUMBERS, AND SPECIFICATION OF

WHICH WORDS WERE SPOelled CORRECTLY BY EACH SUBJECT

Rank	No. ^a	Word	Difficulty ^b	S1	S2	S3	S4	Rank	No. ^a	Word	Difficulty ^b	S1	S2	S3	S4
1	3	seasons	91			X	X	31	27	nickel	59			X	
2	60	dollars	89	X		X		32	5	typewriter	58			X	X
3	29	friendship	88	X	X	X		33	34	instructor	58				
4	18	education	88			X		34	30	economic	57			X	
5	50	excuse	87	X		X	X	35	4	calendar	56			X	
6	1	nineteen	87	X	X	X	X	36	43	quantity	55			X	
7	28	January	83	X		X	X	37	48	character	55				
8	26	modern	82			X	X	38	55	grammar	55				
9	53	mayor	81			X	X	39	16	ninety	53			X	X
10	6	fourth	80			X		40	13	disappointed	52			X	X
11	9	materials	79			X	X	41	35	extension	49			X	
12	54	thoughts	79				X	42	56	fifteenth	49	X		X	
13	52	cousin	78				X	43	41	referring	48				
14	10	honesty	76				X	44	45	niece	47				X
15	2	enclosing	75				X	45	4	all right	41				
16	22	expensive	74			X	X	46	32	gratitude	40				
17	47	families	74			X	X	47	38	recognition	40				
18	40	machines	73				X	48	21	committed	37			X	
19	58	curtains	71			X		49	59	separately	37				
20	17	twenty-five	70		X	X		50	51	courteous	34				
21	39	neighborhood	70				X	51	37	eligible	31				
22	20	sandwiches	69		X			52	15	recommend	30				
23	7	desirable	68			X	X	53	44	occurred	28				
24	49	generous	67					54	57	unnecessary	25				
25	31	employment	65			X	X	55	19	privilege	22				
26	11	accepted	65					56	33	pageant	19				
27	24	surround	64			X	X	57	46	counsel	17				
28	36	colleges	64					58	25	discipline	14				
29	8	treasurer	63			X		59	12	indefinitely	10				
30	42	temperature	61					60	23	accommodation	10				

Note. An X indicates that a given word was spelled correctly by the subject on the leveling pretest.

^aWord numbers specify the order in which words were presented during administration of the leveling pretest.

^bDifficulty levels indicate the percentage of eighth-graders spelling a given word correctly as specified in the New Iowa Spelling Scale (Greene, 1954).

APPENDIX D

PREBASELINE STUDENT ORIENTATION TO THE SPELLING STUDY

Today is the first day of our spelling study. The purpose of this study is to see how different ways of teaching spelling can help you to learn your words. For the next month, we will work on spell lists, the first thing in the morning until reading time. Every day you will take four short spelling tests. Each test will have eight words on it. These words were especially picked to be hard for you. If they were too easy there would be no room for learning. Once you learn the words, they won't come back anymore. Remember to try your best on the tests. This week, you will take the tests but you won't find out how you do on them. And you won't get a chance to study the words you got wrong either. Sometime next week you will get a chance to find out your scores on the tests and study the words that you got wrong. A tape recording of what goes on during the study is being made in case we want to check on how a spelling study works later on. I will now say something that is very important about the words that you will learn are only to be studied in class and not outside of class.

APPENDIX D

PREBASELINE STUDENT ORIENTATION TO THE SPELLING STUDY

only here in class.

I am now going to pass out the papers that you will take the four tests on (PASS OUT PAPERS). Notice the dotted line toward the top of the paper. You don't need to write anything in there. That section will always be filled out before you get your paper. It will have information in it like your name, which test you are taking, the day, and the date. You will be writing in the middle column of the page next to the numbers 1 through 8 (POINT TO SECTION) - right under where it says "Print all spelling words". You are to print rather than write so it will be easier to read your papers. Print clearly and dot your i's and cross t's so they don't look like n's or l's. Only start words with a capital letter if the word takes a capital letter. All words are to be written in pencil. Does everybody have a pencil today? (SHOWING PENCILS IF NECESSARY.) I will give two sets of words for each test - one set for Michelle and Theresa - the other set for Jimmy and Susan. Today I will start with Michelle and Theresa's words. After your test is finished, turn your papers over until it is your turn to be tested again. I will say the number of the word, use the word in a sentence and repeat the word again. But I won't be giving you any other information about the word - like its meaning - during the tests. Remember, try your best. Any questions?

Michelle and Theresa, these are your words (ADMINISTER TESTS IN ORDER A-B-C-D as alternate between easy and hard lists). Does everybody have a sharp pencil? (PASS PENCILS SHARPENING BLADES (SHARPENING TESTING).)

APPENDIX D

PREBASELINE STUDENT ORIENTATION TO THE SPELLING STUDY

Today is the first day of our spelling study. The purpose of this study is to see how different ways of teaching spelling can help you to learn your words. For the next month, we will work on spelling, the first thing in the morning until reading time. Every day you will take four short spelling tests. Each test will have eight words on it. These words were especially picked to be hard for you. If they were too easy there would be no room for learning. Once you learn the words, they won't seem hard anymore. Remember to try your best on the tests. This week, you will take the tests but you won't find out how you do on them. And you won't get a chance to study the words you get wrong either. Sometime next week you will get a chance to find out your score on the tests and study the words that you get wrong. A tape recording of what goes on during the study is being made in case we need to check on how a certain lesson went, later on. I will now say something that is very important. The spelling words that you will learn are only to be studied here in class and not outside of class. So the spelling words you will learn are only to be studied where (WAIT FOR A GROUP RESPONSE)? That's right. Remember to study the words only here in class.

I am now going to pass out the papers that you will take the four tests on (PASS OUT PAPERS). Notice the dotted line toward the top of the paper. You don't need to write anything in there. That section will always be filled out before you get your paper. It will have information in it like your name, which test you are taking, the day, and the date. You will be writing in the middle column of the page next to the numbers 1 through 8 (POINT TO SECTION) - right under where it says "Print all spelling words". You are to print rather than write so it will be easier to read your papers. Print clearly and dot your i's and cross t's so they don't look like e's or l's. Only start words with a capital letter if the word takes a capital letter. All tests are to be written in pencil. Does everybody have a pencil today? (FURNISH PENCILS IF NECESSARY.) I will give two sets of words for each test - one set for Michelle and Theresa - the other set for Tammy and Shawn. Today I will start with Michelle and Theresa's words. After your test is finished, turn your papers over until it is your turn to be tested again. I will say the number of the word, use the word in a sentence and repeat the word again. But I won't be giving you any other information about the word - like its meaning - during the tests. Remember, try your best. Any questions?

Michelle and Theresa, these are your words (ADMINISTER TESTS IN ORDER A-B-D-C; alternate between easy and hard lists). Does everyone have a sharp pencil? (HAVE PENCILS SHARPENED BEFORE STARTING TESTING.)

SPELLING TEST

NAME: _____

DATE: _____

TIME: _____

SCORE: _____

GRADE: _____

TEACHER: _____

CLASS: _____

DATE: _____

TIME: _____

INSTRUCTIONS: Read each word carefully and spell it correctly.

1. _____

2. _____



3. _____

4. _____

5. _____

6. _____

APPENDIX E

SPELLING TEST FORM

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

19. _____

20. _____

TOTAL CORRECT _____

TOTAL WORDS _____

SPELLING TEST

WORD SET: A B C D E

ORIGINAL COPY 1 COPY 2Michelle Tammy

GRADE _____

Teresa Shawn

DAY: M Tu W Th F

PHASE: 1 2 3 4

DATE: / /

----- PLEASE DO NOT WRITE ABOVE THIS LINE -----

DIRECTIONS: Print all spelling words.

CORRECTIONS

_____	_____	1. _____	1. _____
_____	_____	2. _____	2. _____
_____	_____	3. _____	3. _____
_____	_____	4. _____	4. _____
_____	_____	5. _____	5. _____
_____	_____	6. _____	6. _____
_____	_____	7. _____	7. _____
_____	_____	8. _____	8. _____

TOTAL CORRECT _____

TOTAL MISSED _____

SENTENCES EMPLOYED DURING TEST ADMINISTRATION WHICH CONTAIN SPELLING WORDS

TABLE 1

1. The mother was looking for guests.
2. The mother was looking for guests.
3. The mother was looking for guests.
4. The mother was looking for guests.
5. The mother was looking for guests.
6. The mother was looking for guests.
7. The mother was looking for guests.
8. The mother was looking for guests.

TABLE 2

1. The mother was looking for guests.
2. The mother was looking for guests.
3. The mother was looking for guests.
4. The mother was looking for guests.
5. The mother was looking for guests.
6. The mother was looking for guests.
7. The mother was looking for guests.
8. The mother was looking for guests.

APPENDIX F

SENTENCES EMPLOYED DURING TEST ADMINISTRATION WHICH CONTAIN SPELLING WORDS

TABLE 3

1. The mother was looking for guests.
2. The mother was looking for guests.
3. The mother was looking for guests.
4. The mother was looking for guests.
5. The mother was looking for guests.
6. The mother was looking for guests.
7. The mother was looking for guests.
8. The mother was looking for guests.

TABLE 4

1. The mother was looking for guests.
2. The mother was looking for guests.
3. The mother was looking for guests.
4. The mother was looking for guests.
5. The mother was looking for guests.
6. The mother was looking for guests.
7. The mother was looking for guests.
8. The mother was looking for guests.

TABLE 5

1. The mother was looking for guests.
2. The mother was looking for guests.
3. The mother was looking for guests.
4. The mother was looking for guests.
5. The mother was looking for guests.
6. The mother was looking for guests.
7. The mother was looking for guests.
8. The mother was looking for guests.

SENTENCES EMPLOYED DURING TEST ADMINISTRATIONS WHICH CONTAIN SPELLING WORDS

Less difficult words used for Subjects 1 and 2:

Set A

1. The hostess entertained her guests.
2. The prisoner was confined to his cell.
3. The car salesman said, "The price includes air conditioning."
4. The actor's piercing scream sent shivers down the audience's spine.
5. The tomboy was very good at climbing trees.
6. Detroit is known for its auto manufacturing.
7. The patient suffers from a slipped disc.
8. Through what methods are they learning multiplication?

Set B

1. Was the prisoner sane at the time she committed the crime?
2. Mr. Jones was under constant pressure at work.
3. The surgeon was operating on the patient.
4. The piano player put her heart and soul into her performances.
5. You get more for your money when you see double-features at the movies.
6. The T.V. show was to be continued the next week.
7. The house was located in a much desired neighborhood.
8. Do you think he speaks with a foreign accent?

Set C

1. The parents wanted to adopt a child.
2. The machine accepted exact change only.
3. The oldest son was a disgrace to the family.
4. The money she gave to charity was claimed as a tax deduction.
5. The lawyer wrote a letter regarding his case.
6. The businessman suffered a great loss in the stock market.
7. The accident was not entirely her fault.
8. The cousins were as close to each other as brothers.

Set D

1. Gasoline will eventually become a very scarce resource.
2. The sky looks so beautiful at sunset.
3. The workaholic was limited only by the number of hours in the day.
4. Don't get involved in this matter - it's my affair.
5. The housewife stored her towels in the linen closet.
6. One must crawl before he walks.
7. The young girl was swept off of her feet by the charming lad.
8. The daughter bears a striking resemblance to her mother.

Set E

1. Polar bears can live in cold climates.
2. The contents of the food are listed on the label.
3. If you are tardy for school, you will miss part of your class.
4. The situation was quite unbearable.
5. The people wondered whether it would snow during the remainder of winter.
6. The pitcher threw the fastball.
7. She was so sick that she had to be placed in the hospital.
8. The girl complained, "Nobody ever notices me."

SENTENCES EMPLOYED DURING TEST ADMINISTRATIONS WHICH CONTAIN SPELLING WORDS
More difficult words used for Subjects 3 and 4:

Set A

1. The seamstress has a talent for sewing embroidery.
2. The wretched old woman was so heartbroken she attempted suicide.
3. Apparently, the debaters do not perceive the situation the same way.
4. Do you possess a talent for playing the piano?
5. The travelers were inconvenienced by the late airplane departure.
6. Mr. Brown occasionally felt dissatisfied with his work.
7. After a few minutes, your eyes will accommodate to the darkness.
8. The choir sang with enthusiasm.

Set B

1. If I succeed in this final endeavor, my lifelong wish will be fulfilled.
2. His apology was delivered through a bouquet of roses.
3. The parliament was given responsibility for developing the laws of the land.
4. The analysis revealed traces of radioactivity in the atmosphere.
5. The defendant was competent to stand trial.
6. She is undoubtedly a brilliant scientist.
7. And consequently, he was able to win the Nobel peace award.
8. The secretary typed a memorandum and placed it in Mr. Jones' box.

Set C

1. The fossil was dated as approximately one million years old.
2. The secretary's typing skills were adequate for her job.
3. The man looked under "attorneys" in the yellow pages to find himself a lawyer.
4. The piston moves up and down in the cylinder.
5. The girl got so wrought up when she thought that she lost her key.
6. The performers danced in the aisles before marching onto the stage.
7. The distinguished-looking gentleman wore a tweed suit.
8. The adventurer's life was a succession of one peril followed by another.

Set D

1. It is easier to climb up this mountain than it is to descend it.
2. The inventor thought it inevitable that he would be rich one day.
3. The witness signed the affidavit and submitted it to the judge.
4. The clerk asked his boss for a letter of recommendation.
5. The city was well equipped for snow removal operations.
6. She was desirous of being a movie star.
7. She ended the letter to her friend, "Affectionately yours, Joanne."
8. I deem this act as a violation of my rights.

Set E

1. The filter was very efficient at removing impurities from the water.
2. She opened the envelope and read the fancy epistle announcing her girlfriend's wedding.
3. To prevent a crisis, the people were evacuated from the area of the suspected gas leak.
4. Committees were appointed to investigate an increase in crime.
5. Continuous pressure at work gave the supervisor a headache.
6. The factory worker was laid off for an indefinite period of time.
7. The union representative fought for higher salaries.
8. The air traffic controller radioed back to the plane, "We are acknowledging receipt of your message."

COUNTERBALANCING ORDERS

<u>Session</u>	<u>Word Set Order</u>	<u>Difficulty Level Order^a</u>
1	ABDC	EH
2	EACD	HE
3	DBCA	EH
4	BACD	HE
5	CABD	EH
6	BOCA	HE
7	ABDC	EH
8	BACD	HE
9		EH
10		HE
11		EH
12		HE
13	ECAD	EH
14	CEBA	HE
15	ABDC	EH
16	BACD	HE
17	ECAD	EH
18	CEBA	HE
19	ABDC	EH
20	BACD	HE
21	ECAD	EH
22	CEBA	HE
23	ABDC	EH
24	BACD	HE
25	ECAD	EH

APPENDIX G

COUNTERBALANCING ORDERS

^a E refers to the easier word sets administered to Subjects 1 and 2;
H refers to the harder word sets administered to Subjects 3 and 4.

COUNTERBALANCING ORDERS

<u>Session</u>	<u>Word Set Order</u>	<u>Difficulty Level Order^a</u>
1	ABDC	EH
2	BACD	HE
3	DBCA	EH
4	BACD	HE
5	CABD	EH
6	BDCA	HE
7	ABDC	EH
8	DACB	HE
9	BCAD	EH
10	CDBA	HE
11	ABDC	EH
12	DACB	HE
13	BCAD	EH
14	CDBA	HE
15	ABDC	EH
16	DACB	HE
17	BCAD	EH
18	CDBA	HE
19	ABDC	EH
20	DACB	HE
21	BCAD	EH
22	CDBA	HE
23	ABDC	EH
24	DACB	HE
25	BCAD	EH

^a E refers to the easier word sets administered to Subjects 1 and 2;
H refers to the harder word sets administered to Subjects 3 and 4.

APPENDIX H

1. Which procedure did you prefer?
I preferred the one:

- a. where Mr. Perry turned my paper and I studied on the yellow sheet at my desk
- b. where I turned my own paper and studied on the new study sheet
- c. where I came up to Mr. Perry's desk to study and get practice and points

APPENDIX H

2. From which procedure did you learn the most?

VERBAL PREFERENCE QUESTIONNAIRE

- a. where Mr. Perry turned my paper and I studied on the yellow sheet at my desk
- b. where I turned my own paper and studied on the new study sheet
- c. where I came up to Mr. Perry's desk to study and get practice and points

3. Which procedure would you like to learn new facts of Spanish?
I would choose the one:

- a. where Mr. Perry turned my paper and I studied on the yellow sheet at my desk
- b. where I turned my own paper and studied on the new study sheet
- c. where I came up to Mr. Perry's desk to study and get practice and points

SPELLING QUESTIONS

1. Which procedure did you prefer?
I preferred the one:
 - a. where Mr. Perry marked my paper and I studied on the yellow sheet at my desk
 - b. where I marked my own paper and studied on the new study sheet
 - c. where I came up to Mr. Perry's desk to study and got praise and points

2. From which procedure did you learn the most?
I learned the most from the one:
 - a. where Mr. Perry marked my paper and I studied on the yellow sheet at my desk
 - b. where I marked my own paper and studied on the new study sheet
 - c. where I came up to Mr. Perry's desk to study and got praise and points

3. Which procedure would you use to learn new sets of words?
I would choose the one:
 - a. where Mr. Perry marked my paper and I studied on the yellow sheet at my desk
 - b. where I marked my own paper and studied on the new study sheet
 - c. where I came up to Mr. Perry's desk to study and got praise and points

APPENDIX I

For each item, I checked the following responses to show a low level of
 specific words.

1. I have never heard the word and I don't know what it means.

2. I have heard the word but I don't know what it means.

3. I have heard the word and I know what it means but I don't use it.

4. I have heard the word and I know what it means and I use it.

APPENDIX I

BEHAVIORAL PREFERENCE QUESTIONNAIRE

SPELLING QUESTION

For tomorrow, I choose the following procedure to learn a new set of spelling words:

- a. Mr. Perry marks my paper and I study on the yellow sheet at my desk
- b. I mark my own paper and study on the new study sheet
- c. I come up to Mr. Perry's desk to study and get praise and points

APPENDIX J

TREATMENT CHECKLISTS

INDEPENDENT VARIABLE CHECKLIST FOR BASELINE

DAY: M Tu W Th F

DATE 1 1

COUNTERBALANCING ORDER: _____

☐ Perry

☐ Stone-Edin

(E): Easier level (Michelle and Teresa)

(H): Harder level (Tawny and Shon)

✓: Item Applies

1. Students have sharpened pencils with erasers.

2. Administer _____

APPENDIX J

TREATMENT CHECKLISTS

_____ incorrect counterbalancing (specify: _____)

_____ wrong forms (specify: _____)

_____ non-standard testing (specify: _____)

_____ papers not turned over

3. Administer _____

_____ incorrect counterbalancing (specify: _____)

_____ non-standard testing (specify: _____)

_____ all tests not collected

4. Administer _____

_____ incorrect counterbalancing (specify: _____)

_____ wrong forms (specify: _____)

_____ non-standard testing (specify: _____)

_____ papers not turned over

INDEPENDENT VARIABLE CHECKLIST FOR BASELINE

DAY: M Tu W Th F

DATE / /

COUNTERBALANCING ORDER: _____

☐ Perry☐ BlonStein

(E): Easier level (Michelle and Teresa)

(H): Harder level (Tammy and Shawn)

✓: Item Applies

____ 1. Students have sharpened pencils with erasers.

____ 2. Administer _____ () *

____ incorrect counterbalancing (specify: _____)

____ wrong forms (specify: _____)

____ non-standard testing (specify: _____)

____ papers not turned over

____ 3. Administer _____ () +

____ incorrect counterbalancing (specify: _____)

____ non-standard testing (specify: _____)

____ all tests not collected

____ 4. Administer _____ () *

____ incorrect counterbalancing (specify: _____)

____ wrong forms (specify: _____)

____ non-standard testing (specify: _____)

____ papers not turned over

- ___ 5. Administer ___ () +
 ___ incorrect counterbalancing (specify: _____)
 ___ non-standard testing (specify: _____)
 ___ all tests not collected
- ___ 6. Administer ___ () *
 ___ incorrect counterbalancing (specify: _____)
 ___ wrong forms (specify: _____)
 ___ non-standard testing (specify: _____)
 ___ papers not turned over
- ___ 7. Administer ___ () +
 ___ incorrect counterbalancing (specify: _____)
 ___ non-standard testing (specify: _____)
 ___ all tests not collected
- ___ 8. Administer ___ () *
 ___ incorrect counterbalancing (specify: _____)
 ___ wrong forms (specify: _____)
 ___ non-standard testing (specify: _____)
 ___ papers not turned over
- ___ 9. Administer ___ () +
 ___ incorrect counterbalancing (specify: _____)
 ___ non-standard testing (specify: _____)
 ___ all tests not collected

*Appropriate forms distributed to participants, test read, students turn over their papers

+Test read, all participants' tests collected

I-1

METHOD I: PROCEDURAL CHECKLIST

DAY: M Tu W Th F DATE: / /

PHASE: Alternating Most Effective Preference

RECORDER: Perry Blonstein

1. Students have sharpened pencils and erasers and independent work nearby.
2. Start time noted: :
3. Test papers distributed face down; scratch paper on floor.
4. FIRST DAY ONLY: Say "Some of what I say to you may not be clear at first, but I will explain everything to you clearly before we are through today."
5. Instructions administered correctly. (For this set of words, I will correct those words you have wrong by placing an "X" by the incorrect spelling and then I will write the correct spelling under "corrections." After that, I want you to study those that you have wrong on your own for five minutes. Try your best.)
6. Administer A () as test 1 2 3 4.
 - incorrect counterbalancing (specify:)
 - wrong forms (specify:)
 - non-standard testing (specify:)
 - papers not turned over
7. Administer A () as test 1 2 3 4.
 - incorrect counterbalancing (specify:)
 - non-standard testing (specify:)
 - all tests not collected
8. Teacher X's wrong words and writes corrections in pen.
9. Tests are returned.
10. Instructions administered correctly (now study the words you got wrong on your own for five minutes. Use the scratch paper if you like. If you didn't get any words wrong, then study the words you find the hardest.)

I-2

- ____ 11. Time noted ____ : ____
- ____ 12. Teacher does not supervise studying.
- ____ 13. Instructions delivered correctly 5-minutes following item
10 above (Stop your studying.)
- ____ 14. Time noted ____ : ____
- ____ 15. All tests and scratch paper collected.
- ____ 16. End time noted: ____ : ____
- Total time: _____

NOTES ON STUDY METHOD USED

Michelle: _____

Teresa: _____

Tammy: _____

Shawn: _____

II-1

METHOD II: PROCEDURAL CHECKLIST

DAY: M Tu W Th F DATE: / /
 PHASE: Alternating Most Effective Preference
 RECORDER: Perry Blonstein

1. Students have sharpened pencils with erasers and independent work nearby.
2. Start time noted: :
3. Test papers, model lists, study sheets, pens, and 3 X 5 cards distributed.
4. Teacher places test papers face down on desk and remaining materials face down on floor.
5. FIRST DAY ONLY: Say "Some of what I say to you may not be clear at first, but I will explain everything to you clearly before we are through today."
6. Instructions administered correctly. (For this set of words you will correct your own papers by placing an "X" by the incorrect spellings and then you will write the correct spellings under "corrections". After that, I want you to study only those words that you have wrong, on your study sheets using the new study method for five minutes. Try your best.)
7. Administer B () as test 1 2 3 4.
 incorrect counterbalancing (specify:)
 wrong forms (specify:)
 non-standard testing (specify:)
 papers not turned over
8. Administer B () as test 1 2 3 4.
 incorrect counterbalancing (specify:)
 non-standard testing (specify:)
9. Pencils are placed on the floor.
10. Model lists, study sheets, pens, and 3 X 5 cards are placed on the desk.

II-2

- ____ 11. FIRST DAY ONLY: Model self-correction process on board and deliver relevant instructions.
- ____ 12. Instructions administered correctly. (Follow each letter you've written with your pens. Mark each misspelled word with an "X" in the column under the arrow and copy its correct spelling off of the model list in the corrections column.)
- ____ 13. Administer self-correction for B ().
- ____ 14. Administer self-correction for B ().
- ____ 15. Teacher double-checks self-corrections of each student, circles inaccurate self-corrections (i.e. incorrect word scored as right, correct word scored as wrong), and answers student questions if they cannot isolate inaccuracies of self-correction.
- ____ Michelle ____ Teresa ____ Tammy ____ Shawn
- ____ 16. Instructions administered correctly. (Now write the number you got right and the number missed in the spaces on the bottoms of your papers.)
- ____ 17. FIRST DAY ONLY: Model study method use on the board and deliver relevant instructions.
- ____ 18. Instructions administered correctly. (Now write only the words that you got wrong into the rectangles on your study sheets. If you didn't get any words wrong, write the words you find the hardest in the rectangles.)
- ____ 19. All test papers and pens are collected and correctness of spelling in boxes is checked.
- ____ 20. Instructions delivered correctly. (Now study the words in your rectangles for five minutes using the new study method. Keep studying for your full five-minutes.)
- ____ 21. Time noted: _____
- ____ 22. Teacher supervises appropriate use of study method by each student at their desks.
- ____ Michelle ____ Teresa ____ Tammy ____ Shawn
- ____ 23. Instructions delivered correctly 5-minutes following item 20 above (Stop your studying.)
- ____ 24. Time noted: _____
- ____ 25. Study sheets, model word lists, and index cards are collected.
- ____ 26. End time noted: _____
- Total time: _____

III-1

METHOD III: PROCEDURAL CHECKLIST

DAY: M Tu W TH F

Date: ____/____/____

PHASE: ____ Alternating ____ Most Effective ____ Preference

RECORDER: ____ Perry ____ Blonstein

- ____ 1. Students have sharpened pencils with erasers and independent work nearby.
- ____ 2. Start time noted: ____:
- ____ 3. Test papers distributed face down.
- ____ 4. FIRST DAY ONLY: Say "Some of what I say to you may not be clear at first but I will explain everything to you clearly before we are through today."
- ____ 5. Instructions administered correctly. (For this set of words, I will give you one point for each word you spell correctly and praise you for your good work. I am going to help you learn those words you misspell by having you listen while I say the word aloud. Then, I want you to pronounce the word correctly and then say each letter of the word while you write it. I will have you repeat this practice five times for each word you misspell. Try your best.)
- ____ 6. Administer C () as test 1 2 3 4.
 - ____ Incorrect counterbalancing (specify: ____)
 - ____ wrong forms (specify: ____)
 - ____ non-standard testing (specify: ____)
 - ____ papers not turned over
- ____ 7. Administer C () as test 1 2 3 4.
 - ____ incorrect counterbalancing (specify: ____)
 - ____ non-standard testing (specify: ____)
- ____ 8. All tests collected.
- ____ 9. Students sits down at the teacher's desk (enter order).
 - ____ Michelle ____ Teresa ____ Tammy ____ Shawn
 - ____

III-2

	Michelle	Teresa	Tammy	Shawn
TIME STUDENT LEAVES DESK:				
TIME STUDENT SITS AT DESK:				
TOTAL TIME AT DESK:				

____ 10. Non-remediating students engage in non-spelling independent work.

____ 11. Correct words are marked with "____" with students at teacher's desk.

____ 12. Deliver feedback and praise (e.g. (a) You earned ____ points today. (b) That's very good/very nice/excellent/beautiful/terrific/what I like to see, etc. (c) You got ____ (name words) (wrong).

____ Michelle ____ Teresa ____ Tammy ____ Shawn

____ point feedback missing (specify: _____).

____ praise missing (specify: _____).

____ wrong words not specified (specify: _____).

____ points not entered on teacher's records

____ 13. Paraphrase instructions correctly. (For this set of words, I am going to help you learn those words you misspell by having you listen while I say and spell the word aloud. Then, I want you to pronounce the word correctly and then say aloud each letter of the word while you write it. I will have you repeat this practice five times for each word you misspell. Try your best.)

____ Michelle ____ Teresa ____ Tammy ____ Shawn

III-3

____ 14. Administer remediation correctly.

____ Michelle ____ Teresa ____ Tammy ____ Shawn

____ teacher did not say word and spelling (specify: ____
_____).

____ student did not repeat word (specify: ____
_____).

____ student did not write and spell word correctly five
times (specify: _____).

____ teacher did not say "Student's" name, that's incorrect;
it's (e.g. dog, d-o-g) (specify: _____
_____).

____ teacher doesn't indicate correctness of spelling (e.g.
"correct", "right", "good", "O.K.", etc.)

____ teacher doesn't syllabify words

____ 15. End time noted: _____

Total time: _____

IV-1

METHOD IV: PROCEDURAL CHECKLIST

DAY: M Tu W Th F DATE: ____/____/____
 PHASE: ____ Alternating ____ Most Effective ____ Preference
 RECORDER: ____ Perry ____ Blonstein

- ____ 1. Students have sharpened pencils with erasers and independent work nearby.
- ____ 2. Start time noted: ____ : ____
- ____ 3. Test papers distributed face down.
- ____ 4. Instructions administered correctly. (For this set of words you will take a test. You won't find out which words you got wrong on this test and you won't study the words that you got wrong. Try your best.)
- ____ 5. Administer D () as test 1 2 3 4.
 ____ incorrect counterbalancing (specify: ____).
 ____ wrong forms (specify: ____).
 ____ non-standard testing (specify: ____).
 ____ papers not turned over
- ____ 6. Administer D () as test 1 2 3 4.
 ____ incorrect counterbalancing (specify: ____).
 ____ non-standard testing (specify: ____).
 ____ all tests not collected
- ____ 7. End time noted: ____ : ____
 Total time: ____

I-1: REVISED

METHOD 1: PROCEDURAL CHECKLIST

TAMMY

DAY: M Tu W Th F

DATE: ___/___/___

PHASE: ___ Alternating ___ x Most Effective ___ Preference

RECORDER: ___ Perry ___ Blonstein

- ___ 1. Students have sharpened pencils and erasers and independent work nearby.
- ___ 2. Start time noted: ___:___
- ___ 3. Test papers distributed face down; scratch paper on floor.
- ___ 4. FIRST DAY ONLY: Say "Some of what I say to you may not be clear at first, but I will explain everything to you clearly before we are through today."
- ___ 5. Instructions administered correctly. ^{TAMMY,} For this set of words, I will correct those words you have wrong by placing an "X" by the incorrect spelling and then I will write the correct spelling under "corrections." After that, I want you to study those that you have wrong on your own for five minutes. Try your best.)
- ___ 6. Administer A () as test 1 2 3 4.
 - ___ incorrect counterbalancing (specify: _____)
 - ___ wrong forms (specify: _____)
 - ___ non-standard testing (specify: _____)
 - ___ papers not turned over
- ___ 7. Administer A () as test 1 2 3 4.
 - ___ incorrect counterbalancing (specify: _____)
 - ___ non-standard testing (specify: _____)
 - ___ all tests not collected
- ___ 8. Teacher X's wrong words and writes corrections in pen.
- ___ 9. Tests are returned.
- ___ 9a. Tammy removes her earplugs.
- ___ 10. Instructions administered correctly. ^{TAMMY,} Now study the words you got wrong on your own for five minutes. Use the scratch paper if you like. If you didn't get any words wrong, then study the words you find the hardest.)

I-2 REVISED

- ____ 11. Time noted ____ : ____
- ____ 12. Teacher does not supervise studying.
- ____ 13. Instructions delivered correctly 5-minutes following item 10 above (Stop your studying.)
- ____ 14. Time noted ____ : ____
- ____ 15. All tests and scratch paper collected.
- ____ 16. End time noted: ____ : ____
- Total time: _____

NOTES ON STUDY METHOD USED

Michelle: _____

Teresa: _____

Tammy: _____

Shawn: _____

II-1: REVISED
 METHOD II: PROCEDURAL CHECKLIST
MICHELLE AND SHAWN

DAY: M Tu W Th F DATE: ___/___/___
 PHASE: ___ Alternating ___ ☒ Most Effective ___ Preference
 RECORDER: ___ Perry ___ Blonstein

- ___ 1. Students have sharpened pencils with erasers and independent work nearby.
- ___ 2. Start time noted: ___:
- ___ 3. Test papers, model lists, study sheets, pens, and 3 X 5 cards distributed.
- ___ 4. Teacher places test papers face down on desk and remaining materials face down on floor.
- ___ 5. FIRST DAY ONLY: Say "Some of what I say to you may not be clear at first, but I will explain everything to you clearly before we are through today."
- ___ 6. Instructions administered correctly. ^{(MICHELLE AND SHAWN,} for this set of words you will correct your own papers by placing an "X" by the incorrect spellings and then you will write the correct spellings under "corrections". After that, I want you to study only those words that you have wrong, on your study sheets using the new study method for five minutes. Try your best.)
- ___ 7. Administer B () as test 1 2 3 4.
 ___ incorrect counterbalancing (specify: ___)
 ___ wrong forms (specify: ___)
 ___ non-standard testing (specify: ___)
 ___ papers not turned over
- ___ 8. Administer B () as test 1 2 3 4.
 ___ incorrect counterbalancing (specify: ___)
 ___ non-standard testing (specify: ___)
- ___ 8a. Tammy and Teresa insert earplugs and work independently.
- ___ 8b. Michelle and Shawn self-correct before other girls study their words.
- ___ 9. Pencils are placed on the floor.
- ___ 10. Model lists, study sheets, pens, and 3 X 5 cards are placed on the desk.

II-2: REVISED

- ____ 11. FIRST DAY ONLY: Model self-correction process on board and deliver relevant instructions.
- ____ 12. Instructions administered correctly. (Follow each letter you've written with your pens. Mark each misspelled word with an "X" in the column under the arrow and copy its correct spelling off of the model list in the corrections column.)
- ____ 13. Administer self-correction for B ().
- ____ 14. Administer self-correction for B ().
- ____ 15. Teacher double-checks self-corrections of each student, circles inaccurate self-corrections (i.e. incorrect word scored as right, correct word scored as wrong), and answers student questions if they cannot isolate inaccuracies of self-correction.
- ____ Michelle ____ Teresa ____ Tammy ____ Shawn
- ____ 16. Instructions administered correctly. (Now write the number you got right and the number missed in the spaces on the bottoms of your papers.)
- ____ 17. FIRST DAY ONLY: Model study method use on the board and deliver relevant instructions.
- ____ 18. Instructions administered correctly. (Now write only the words that you got wrong into the rectangles on your study sheets. If you didn't get any words wrong, write the words you find the hardest in the rectangles.)
- ____ 19. All test papers and pens are collected and correctness of spelling in boxes is checked.
- ____ 19a. Tammy's paper is corrected before Michelle and Shawn study.
- (MICHELLE AND SHAWN,
- ____ 20. Instructions delivered correctly. Now study the words in your rectangles for five minutes using the new study method. Keep studying for your full five-minutes.)
- ____ 21. Time noted: _____
- ____ 22. Teacher supervises appropriate use of study method by each student at their desks.
- ____ Michelle ____ Teresa ____ Tammy ____ Shawn
- ____ 23. Instructions delivered correctly 5-minutes following item 20 above (Stop your studying.)
- ____ 24. Time noted: _____
- ____ 25. Study sheets, model word lists, and index cards are collected.
- ____ 26. End time noted: _____
- Total time: _____
- ____ 26a. Teresa removes earplugs and comes to teacher's desk.

III-1: REVISED

METHOD III: PROCEDURAL CHECKLIST

TEPESA

DAY: M Tu W Th F

Date: ____/____/____

PHASE: ____ Alternating ____ ☒ Most Effective ____ Preference

RECORDER: ____ Perry ____ Blonstein

- ____ 1. Students have sharpened pencils with erasers and independent work nearby.
- ____ 2. Start time noted: _____
- ____ 3. Test papers distributed face down.
- ____ 4. FIRST DAY ONLY: Say "Some of what I say to you may not be clear at first but I will explain everything to you clearly before we are through today."
- ____ 5. Instructions administered correctly. (TERESA, A for this set of words, I will give you one point for each word you spell correctly and praise you for your good work. I am going to help you learn those words you misspell by having you listen while I say the word aloud. Then, I want you to pronounce the word correctly and then say each letter of the word while you write it. I will have you repeat this practice five times for each word you misspell. Try your best.)
- ____ 6. Administer C () as test 1 2 3 4.
 - ____ Incorrect counterbalancing (specify: _____)
 - ____ wrong forms (specify: _____)
 - ____ non-standard testing (specify: _____)
 - ____ papers not turned over
- ____ 7. Administer C () as test 1 2 3 4.
 - ____ incorrect counterbalancing (specify: _____)
 - ____ non-standard testing (specify: _____)
- ____ 8. All tests collected.
- ____ 9. Students sits down at the teacher's desk (enter order).
 - ____ Michelle ____ Teresa ____ Tammy ____ Shawn
- ____ 9a. Michelle puts her earplugs in.

111-2: REVISED

	Michelle	Teresa	Tammy	Shawn
TIME STUDENT LEAVES DESK:				
TIME STUDENT SITS AT DESK:				
TOTAL TIME AT DESK:				

- ___10. Non-remediating students engage in non-spelling independent work.
- ___11. Correct words are marked with "___" with students at teacher's desk.
- ___12. Deliver feedback and praise (e.g. (a) You earned ___ points today. (b) That's very good/very nice/excellent/beautiful/terrific/what I like to see, etc. (c) You got ___ (name words) wrong).
- ___ Michelle ___x Teresa ___ Tammy ___ Shawn
- ___ point feedback missing (specify: _____).
- ___ praise missing (specify: _____).
- ___ wrong words not specified (specify: _____).
- ___ points not entered on teacher's records
- ___13. Paraphrase instructions correctly. (For this set of words, I am going to help you learn those words you misspell by having you listen while I say and spell the word aloud. Then, I want you to pronounce the word correctly and then say aloud each letter of the word while you write it. I will have you repeat this practice five times for each word you misspell. Try your best.)

___ Michelle ___x Teresa ___ Tammy ___ Shawn

III-3: REVISED

___ 14. Administer remediation correctly.

___ Michelle ___ ☒ Teresa ___ Tammy ___ Shawn

___ teacher did not say word and spelling (specify: _____).

___ student did not repeat word (specify: _____).

___ student did not write and spell word correctly five times (specify: _____).

___ teacher did not say "Student's" name, that's incorrect; it's (e.g. dog, d-o-g) (specify: _____).

___ teacher doesn't indicate correctness of spelling (e.g. "correct", "right", "good", "O.K.", etc.)

___ teacher doesn't syllabify words

___ 15. End time noted: _____

Total time: _____

IV-1: REVISED

METHOD IV: PROCEDURAL CHECKLIST

DAY: M Tu W Th F DATE: ____/____/____
 PHASE: ____ Alternating ____ ☒ Most Effective ____ Preference
 RECORDER: ____ Perry ____ Blonstein

- ____ 1. Students have sharpened pencils with erasers and independent work nearby.
 - ____ 2. Start time noted: ____:
 - ____ 3. Test papers distributed face down.
 - ____ 4. Instructions administered correctly. (For this set of words you will take a test. You won't find out which words you got wrong on this test and you won't study the words that you got wrong. Try your best.)
 - ____ 5. Administer D () as test 1 2 3 4.
 ____ incorrect counterbalancing (specify: ____).
 ____ wrong forms (specify: ____).
 ____ non-standard testing (specify: ____).
 ____ papers not turned over
 - ____ 6. Administer D () as test 1 2 3 4.
 ____ incorrect counterbalancing (specify: ____).
 ____ non-standard testing (specify: ____).
 ____ all tests not collected
 - ____ 7. End time noted: ____:
- Total time: ____

200-402

APPENDIX K
STUDY SHEET FOR SPECIFIED METHOD

APPENDIX K
STUDY SHEET FOR SPECIFIED METHOD

STUDY SHEET

DATE: / /

DAY: M Tu W Th F
 Michelle Tamy
 Teresa Shawn

READ :

READ :

COVER AND PRINT IT : 1.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 1.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 2.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 2.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 3.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 3.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 4.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 4.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 5.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 5.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

READ :

READ :

COVER AND PRINT IT : 1.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 1.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 2.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 2.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 3.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 3.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 4.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 4.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 5.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

COVER AND PRINT IT : 5.

UNCOVER AND CHECK SPELLING:

☐ RIGHT ☐ WRONG
 READ WORD AGAIN

APPENDIX L

WORD SETS, WORD DIFFICULTY AND GRADE LEVELS, AND EQUIVALENT FORMS

FROM WHICH WORDS WERE OBTAINED

Set A	Difficulty	Grade	Form
1. jewel	64	6	B
2. profit	60	6	A
3. purchase	62	6	B
4. partial	66	6	A
5. wherever	73	6	A
6. neighbor	74	6	B
7. bucket	75	6	B
8. illness	78	6	B

APPENDIX L

WORD SETS, WORD DIFFICULTY AND GRADE LEVELS, AND EQUIVALENT FORMS
FROM WHICH WORDS WERE OBTAINED

Set B	Difficulty	Grade	Form
1. serving	65	6	A
2. taste	64	6	B
3. manager	70	6	B
4. laid	74	6	A
5. candle	82	6	B
6. adventure	89	6	A
7. canvas	81	6	A
8. directly	72	6	A

Set C	Difficulty	Grade	Form
1. central	64	6	A
2. waste	69	6	B
3. burden	75	6	B
4. level	65	6	B
5. bushel	79	6	B
6. precious	48	6	A
7. material	72	6	A
8. strike	81	6	A

APPENDIX LWORD SETS, WORD DIFFICULTY AND GRADE LEVELS, AND EQUIVALENT FORMSFROM WHICH WORDS WERE OBTAINED

<u>Set A</u>	<u>Difficulty</u>	<u>Grade</u>	<u>Form</u>
1. jewel	64	6	B
2. profit	80	6	A
3. purchase	62	6	B
4. parties	84	5	A
5. wherever	79	6	A
6. neighbor	73	5	B
7. bucket	90	5	A
8. illness	90	6	B

COUNTERBALANCING ORDERS FOR STUDY 2

<u>Set B</u>			
1. serving	85	6	A
2. taste	84	5	B
3. manager	77	6	B
4. laid	74	5	A
5. candle	82	5	B
6. adventure	89	6	A
7. canvas	63	6	A
8. directly	72	6	A

<u>Set C</u>			
1. central	84	6	A
2. waste	89	5	B
3. burden	75	6	B
4. level	85	5	B
5. bushel	79	6	B
6. precious	48	6	B
7. material	72	6	A
8. strike	81	5	A

APPENDIX M
COUNTERBALANCING ORDERS

Session	Order
1	ABC
2	BAC
3	CAB
4	ABC
5	BAC
6	CAB
7	ABC
8	
9	
10	
11	
12	CAB
13	ABC
14	BAC
15	CAB
16	ABC
17	BAC
18	CAB
19	ABC
20	BAC
21	CAB
22	ABC

APPENDIX M
COUNTERBALANCING ORDERS FOR STUDY 2

APPENDIX M
COUNTERBALANCING ORDERS

<u>Session</u>	<u>Order</u>
1	ABC
2	BCA
3	CAB
4	ABC
5	BCA
6	CAB
7	ABC
8	BCA
9	CAB
10	ABC
11	BCA
12	CAB
13	ABC
14	BCA
15	CAB
16	ABC
17	BCA
18	CAB
19	ABC
20	BCA
21	CAB
22	ABC

APPENDIX N

SENTENCES EMPLOYED DURING TEST ADMINISTRATIONS WHICH CONTAIN SPELLING WORDS

STUDY 1

STUDY 1

1. The crowd was in sympathy for the speaker.
2. The businessmen were a party to the matter.
3. The situation was that of the party without resources.
4. The committee plans to assist.
5. The letter which followed the meeting had regarding the work.
6. As much as the subject is a subject.
7. The village was about 1000.
8. The village was about 1000.

STUDY 2

APPENDIX N

STUDY 2

SENTENCES EMPLOYED DURING TEST ADMINISTRATIONS WHICH CONTAIN SPELLING WORDS

1. The politician is giving a speech.
2. The politician is giving a speech.
3. The politician is giving a speech.
4. The politician is giving a speech.
5. The politician is giving a speech.
6. The politician is giving a speech.
7. The politician is giving a speech.
8. The politician is giving a speech.

STUDY 3

1. The capital has reached the summit.
2. Don't waste your time trying to convince me.
3. The apple is considered a fruit of the tree.
4. The large field was easy to plow.
5. How many pounds of wheat are there in the bushel?
6. The principle was very true in the matter of the law.
7. The letter was the material of the work.
8. The workers were not so strong.

APPENDIX NSENTENCES EMPLOYED DURING TEST ADMINISTRATIONS WHICH CONTAIN SPELLING WORDS:STUDY 2Set A

1. The jewel was on display in the museum.
2. The businessman made a profit in the stock market.
3. The donation was used to purchase medical supplies.
4. The musician plays at parties.
5. The baby chick followed the mother hen wherever she went.
6. My next door neighbor is a hermit.
7. She filled up the bucket at the well.
8. Her illness was almost cured.

Set B

1. The politician is serving a second term.
2. How does your steak taste?
3. He was promoted to assistant manager.
4. The hen laid five eggs.
5. Wax dropped down the lit candle.
6. A trip to the zoo was an adventure for the eight-year-old.
7. The artist preferred painting on canvas.
8. You can get there more directly by taking the short-cut.

Set C

1. The central bus terminal was crowded.
2. Don't waste your time trying to convince him.
3. The mule is considered a beast of burden.
4. The level field was easy to plow.
5. How many pounds of wheat are there to the bushel?
6. The precious gem was found in the mummy's tomb.
7. The tailor used the material in a suit.
8. The workers went out on strike.